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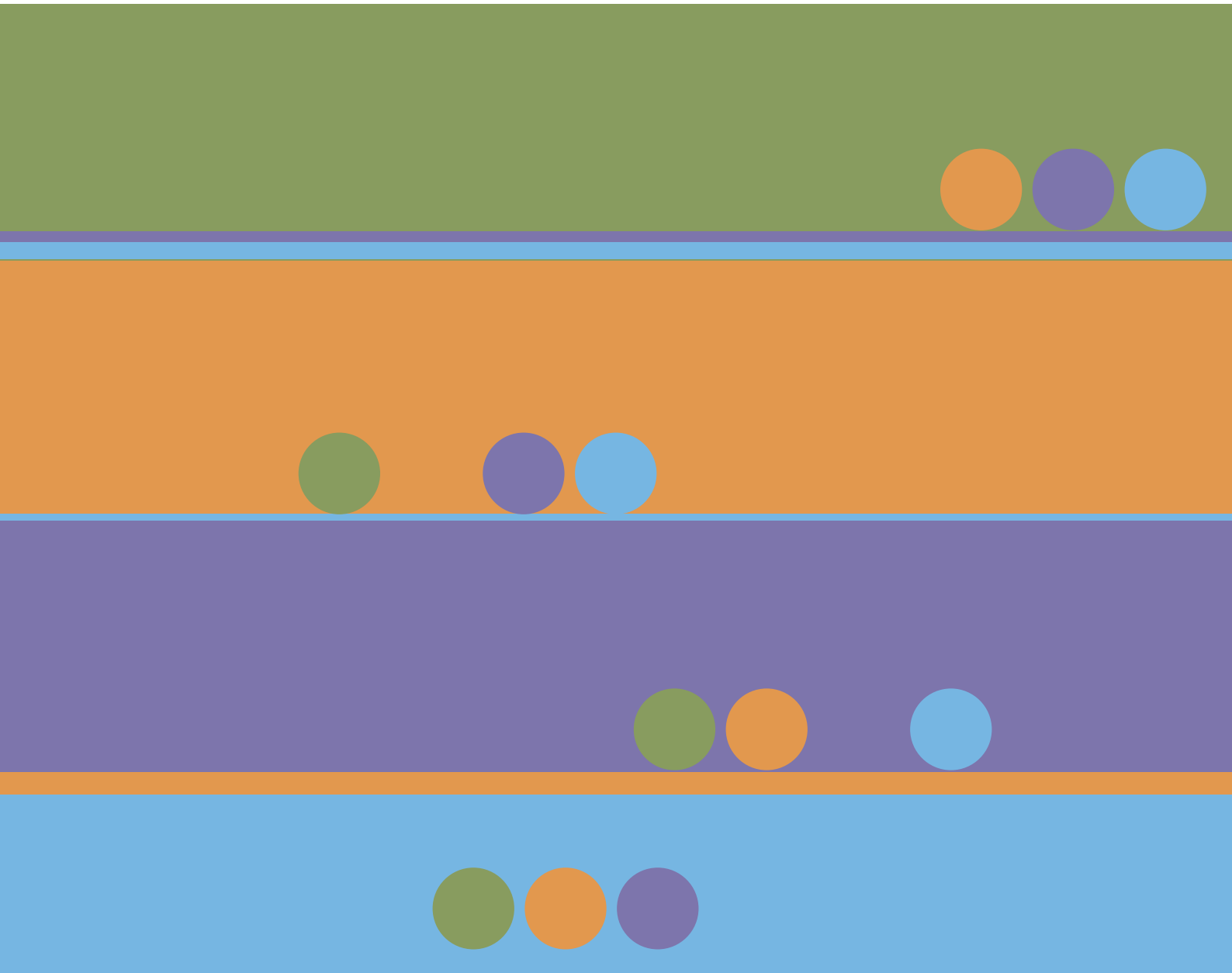
Zambia Human Development Report 2011

Service Delivery for Sustainable Human Development



"As part of the poverty reduction and Millennium Development Goals local level efforts, the United Nations Development Programme (UNDP) supports country programmes to develop their capacity to increase access to basic public services for the poor and the potential of multi-stakeholders partnerships to complement traditional public service delivery approaches". (www.undp.org).

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Message
from the Government

The 2011 *Zambia Human Development Report* comes at a time when the people of Zambia need to be informed about a decade of progress in extending quality services, and expect improved efficiency in delivery and a shift in the manner of implementation.

The people of Zambia are and should be the reason for all national investments, developments and delivery of all public and private services. National policies and programmes in every sector, together with the relevant systems and mechanisms to reach intended beneficiaries, are of primary importance to people's welfare and higher living standards.

This report focuses on services offered in the agriculture, education, health, and water and sanitation sectors. As such, it touches on the basics of human well-being, which are fundamental to human development and respect for human life. The country's low performance on the Human Development Index (HDI), despite a slight improvement to 0.395 in 2010 from below 0.35 in 2000, calls for an immediate and real shift in policy choices. This situation requires reform and recommitment by all public sector implementing agencies significantly concerned with each sector. A reorientation of focus with regard to public financial resources, particularly those allocated to health and education services, needs to address identified gaps so that most people can attain needed quality services. Furthermore, the private sector is called upon to act in bringing substantial benefits to the people of Zambia.

I urge all institutions involved in service delivery to take time and consider the report in order to learn and embrace its key values, and to make advancements in upholding best practices, putting in place people-centred development, emphasizing quality standards, and achieving effective and efficient programme implementation. These aspects need attention, and are part of government's top priority on the development agenda.

I look forward to the people of Zambia being well informed by this report, and to making the necessary changes in the way we do business in order to build a better Zambia for us and our future generations.

Alexander B. Chikwanda, M.P.
MINISTER OF FINANCE

Foreword

Zambia's Human Development Report 2011: Service Delivery for Sustainable Human Development in Zambia addresses the gains, opportunities and challenges in four sectors critical to Zambia's human development progress: namely, agriculture, education, health, and water and sanitation. It is premised on global evidence and widely accepted analysis that the provision of public goods and services in these four sectors is a prerequisite for the development of human capabilities and enhanced well-being. Ensuring and even improving the provision of services is not enough, however; it has to be done on the basis of equal and affordable access, and sustained quality if the most vulnerable populations are to lift themselves out of poverty. Achieving this could deeply impact the course of human development in Zambia.

Previous Zambia human development reports addressed issues such as employment and sustainable livelihoods, eradication of extreme poverty and hunger, and household capacity to respond to HIV and AIDS. The 1998 report reviewed the provision of basic social services, and the findings pointed to inadequate access for the rural and urban poor, and a sharp deterioration of the quality of education, health, and water and, in particular, sanitation services in most parts of the country. We now go back to look at these trends and the picture more than 10 years later, and ask what has changed, what works, and what still needs to be addressed to ensure acceleration of progress in these core areas of human development.

The 2011 report documents a decade of noteworthy improvements in health and basic education services in Zambia. Infrastructure development in these sectors has produced more schools, hospitals and health clinics across the country. Essential drugs for immunization, HIV, malaria and tuberculosis are more readily available, including for those previously not able to afford them. Desks and learning materials have been made available, including importantly to community schools as an increasingly important catchment of school-goers. As a result of measures like these, some health and education outcome measures have improved: maternal and child mortality are on the decline, albeit slowly; primary school enrolment has reached universal coverage; and school completion rates are on the rise. The agricultural sector has recently experienced positive growth rates after a period of near stagnation, especially in non-traditional exports. Progress has also been made in the provision of basic water services, with more people gaining access in both urban and rural areas.

Notwithstanding these improvements, gaps remain in the reach and quality of service delivery. These hold back a stronger surge in overall human development. In 2010, Zambia ranked 150 out of 169 countries on the global Human Development Index. Mortality rates, school completion rates and education, and literacy rates weigh heavily in this measure, over and above the average income levels of a country. For a full measure of human well-being, we have to look beyond income averages, and ask who has reaped returns from the economic growth that Zambia has been enjoying for the past 10 years.

The report points to secondary and tertiary education falling short of catering to the learning needs and skills demands of a young and growing

population. This requires a focus on both quality of learning and completion from early childhood learning through grade 12, and on the ratio of trained teachers to students at each level, as key to boosting the relevance and impact of education. In health, the report looks closely at the still unacceptably high rates of maternal mortality and malnutrition, and the rising prevalence of both communicable and non-communicable diseases. It considers the policy and investment choices to address these concerns, based on lessons from within Zambia and from other countries.

In agriculture, inadequate public investments have limited efforts to combat poverty, enhance food security and end malnutrition. Limited resources have in particular hampered research, extension services, irrigation, support for livestock and fisheries, and the development of market access and infrastructure. In water and sanitation, relatively low investments over the past three decades have created service delivery gaps that will require a large boost in investments over an extended period to sustain a level of service coverage that enables Zambia to reach its Millennium Development Goal targets in these two fields.

The report, if distilled to its essence, puts forward some of the key institutional and regulatory reforms that are needed to achieve current policies, so the country can see a big push in implementation. It recommends a significant leap in human resource capacity investments, especially at local levels, to ensure that skilled personnel with adequate means drive the "last mile" of service delivery. And it looks at responsible public-private partnerships that can boost domestic resourcing in gap areas, with clear lines of accountability and quality assurance in place.

The content and scope of the 2011 report has been a while in the making. It has drawn on extensive research and consultations around the country, with multiple stakeholders from state institutions, civil society, the private sector, academia and independent experts. It traversed the political milieu, as it delved into the issues and debates that have impacted service delivery, and as Zambians from all segments of society soul-searched, questioned and made their voices heard on issues that so directly affect their daily lives. The report has benefitted immensely from being part of a wider public discourse, awareness and articulation of what needs to be done to ensure basic services reach all Zambians, with more equity and justice. We hope the report reflects this public debate, the feedback received and the recommendations made. We also hope that this process, further backed by national data and analysis, will make the report a reference for national policy makers and programme implementers, for community groups and researchers, as they all engage on the development transformation processes underway.

Kanni Wignaraja
UNDP Resident Representative

Acknowledgements

I wish to acknowledge the valuable contributions of the large number of organizations and individuals that contributed to the production of this report. At the top on this list is the National Human Development Report Advisory Committee under the leadership of Chief Mumena, who guided the preparation process, starting from choosing the theme to reviewing the draft versions to launching the report. The role played by the Central Statistical Office of the Ministry of Finance and National Planning in providing data is commendable. UNDP would also like to thank the ministries of Education, Health, Agriculture and Cooperatives, Livestock and Fisheries Development, Local Government and Housing, and the Department of Water Affairs, which readily shared data and information. I would also like to commend the team of consultants that supported the preparation of the report for their commitment and professionalism.

The report benefited from a series of reviews and comments from various national stakeholders from the Civil Society for Poverty Reduction; the University of Zambia; the Economics Association of Zambia; the National AIDS Council; the Programme Against Malnutrition; the National Water Supply and Sanitation Council; traditional authorities; the Governance Secretariat; the Technical Education, Vocational and Entrepreneurship Training Authority; the Ministry of Finance and National Planning; the Ministry of Health; the Ministry of Agriculture and Cooperatives, the Ministry of Livestock and Fisheries Development; the Ministry of Local Government and Housing; and the Ministry of Tourism, Environment and Natural Resources.

I wish to acknowledge the valuable inputs from external peer reviewers from the University of Zambia, Mulungushi University, the UNDP Regional Service Centre for Eastern and Southern Africa and the UNDP Human Development Report Office in New York. A Readers Group within the UNDP Country Office was constituted to enhance the quality of the report, and I thank them for their efforts in finalizing it. Special thanks also go to all my other colleagues at UNDP who contributed in one way or another to making the production of the report possible.

Finally, I would like to acknowledge the contributions of former UNDP Resident Representative Mr. Macleod Nyirongo and former Economic Advisor Mr. John Wayem, who initiated the preparations of the report. Let me also note with deep appreciation the invaluable support and inputs from the current Resident Representative, Ms. Kanni Wignaraja.

Viola Morgan
UNDP Country Director

List of preparation team members on page 128

Zambia's Human Development Balance Sheet

Progress	Challenges
Overall human development	
Zambia's human development improved in the 2000s, following the decline in the 1990s. At 0.395, Zambia's ranking on the Human Development Index (HDI) is above the average of 0.389 for Sub-Saharan Africa, and slightly above the average of 0.393 for low-HDI countries.	The level of human development in Zambia is still low.
Income and poverty	
Extreme poverty declined from 58 percent in 1991 to 51 percent in 2006. Extreme poverty in rural areas declined from 81 percent in 1991 to 67 percent in 2006. Extreme poverty in urban areas declined from 32 percent in 1991 to 20 percent in 2006. Per capita income has increased from US $635 in 2005 to US $970 in 2009. The economy is stable with declining inflation and economic growth averaging 5.5 percent in the recent past.	At 51 percent in 2006, overall extreme poverty is still high. At 67 percent in 2006, extreme poverty in rural areas is especially high. Economic growth is driven by capital-intensive sectors, and has limited impact on community welfare. Despite macroeconomic stability, interest rates have remained high, and in the last five years, domestic debt has been going up.
Education	
Net enrolment rates for grades one to seven increased from 94.7 percent in 2005 to 101.4 percent in 2007. Net enrolment rates for grades one to nine increased from 93.5 percent in 2005 to 99.5 percent in 2007.	At 1 to 57, the primary-teacher–pupil ratios have remained above the recommended standard. The low proportion of domestic funding is a source of concern. The low level of funding for tertiary education poses a threat to the development of science and technology.
Gender inequality	
The percentage of land titles issued to women increased from 5 percent in 2005 to 16.5 percent in 2009.	At 0.82, the ratio of girls to boys at secondary school level remained below one to one in 2007 and 2008. In 2007, the ratio of girls to boys in tertiary education remained below the one-to-one benchmark. Mainstreaming gender into the development process has remained a challenge. In the formal sector, male employment accounted for 71 percent, compared to 29 percent for females.
Child mortality	
There has been a reduction in under-five mortality from 191 deaths per 1,000 live births in 1992 to 119 deaths per 1,000 live births in 2007.	The absolute level of child mortality is still high. The impact of HIV and AIDS has kept child mortality high.
Maternal mortality	
The maternal mortality ratio has declined from 729 deaths per 100,000 live births in 2002 to 591 deaths per 100,000 live births in 2007.	Although declining, the absolute level of maternal mortality is still high. Reproductive health services are worse in rural settings, where maternal mortality is higher. Safe motherhood is not well integrated in reproductive health interventions.

HIV and AIDS, malaria and other diseases	
The number of people tested for HIV increased from 234,430 in 2006 to 1,050,00 in 2008. The prevalence of HIV declined from 16 percent in 2002 to 14.3 percent in 2007. In 2009, HIV incidence was estimated at 1.6 percent or 82,000 new infections. The number of people on anti-retroviral treatment (ART) increased from 30,112 in 2005 to 283,863 in 2009. The number of new malaria cases declined from 412 in 2006 to 252 in 2008. The tuberculosis notification rate decreased from 419 per 100,000 in 2007 to 408 per 100,000 in 2008.	The high proportion of donor funding for both the HIV and malaria programmes is a source of concern with respect to sustainability. The human resource crisis in the health sector has limited attainment of health sector goals.
Water and sanitation	
A higher proportion of the sector budget was allocated to rural water and sanitation. There is a high level of donor commitment to funding programmes in the sector. The proportion of households without access to safe water declined from 51 percent in 1991 to 40 percent in 2006.	The percentage of people without sanitation increased from 26 percent in 1991 to 36.1 percent in 2006. The country has continued experiencing annual outbreaks of cholera. The monitoring and evaluation systems for the sector are underdeveloped.
Equity	
Economic growth accelerated to 5.5 percent over the past 10 years, compared to spells of decline and stagnation in the previous decade. There is wide interest in implementing pro-poor programmes. User fees were removed in health and education. There was an introduction of staff rural retention schemes.	Accelerated economic growth was accompanied by high and increased income inequality, with the Gini index rising from 47.4 in 1996 to 52.6 in 2006.
Employment and sustainable livelihoods	
Timely government intervention ensured job protection during the 2008-2010 global financial and economic crises. Male unemployment declined from 18 percent in 2004 to 13 percent in 2006.	Unemployment increased from 9 percent in 2004 to 15 percent in 2006. Urban unemployment increased from 21 percent in 2004 to 32 percent in 2006
Environmental sustainability	
The national policy on environment was completed. The national climate change adaptation programme of action was launched. As part of efforts to reduce deforestation, 500 hectares were planted.	Environmental issues have not been fully integrated into development programmes. There is a lack of national capacity for environmental management. The country lacks a comprehensive environmental framework that charts a pathway consistent with international instruments. There is limited information on the full extent of environmental degradation and climate change.
Politics, governance and human rights	
The National Constitutional Conference completed its deliberations and prepared a draft Constitution. Sector advisory groups have been critical in guiding policies and programmes.	Some major stakeholders have expressed dissatisfaction with the non-inclusion of important clauses in the draft Constitution. Some sector advisory groups are not very active.

Overview

Service Delivery for Sustainable Human Development

Although the level of human development in Zambia is still low, there has been a positive and sustained change between the years 2000 and 2010, compared to the situation between 1990 and 2000. In that period, the country witnessed a sustained decline, reaching its lowest-ever ranking on the HDI of 0.32 in 2000. Since then, improvements have been observed in all key dimensions of the index: health, education and material wealth. At 0.395 in 2010, Zambia's HDI ranking was above the average of 0.389 for Sub-Saharan Africa and also slightly above the average of 0.393 for low HDI countries[1].

The recent resurgence of consistent economic growth gives hope that Zambia could improve its human development status to pre-1980 levels and higher. The attainment of human development levels compatible with Zambia's vision of reaching middle-income status by 2030, however, will require the removal of a number of structural bottlenecks. Macroeconomic stability and positive economic growth need to be translated into marked declines in poverty, including through broad-based and pro-poor strategies that address poverty in all its dimensions.

The change in the level of human development has been analysed with reference to the changes in service delivery in four main sectors: agriculture, education, health, and water and sanitation. Zambia's service delivery performance has improved on a number of fronts, but bottlenecks slow the attainment of even better human development outcomes. The main challenge lies in the skewed distribution of services across individuals and regions in the country, vulnerability to climate change and the economic and financial crises, and the overlapping deprivations suffered by many. Interprovincial comparisons point to a skewed economic and human development process biased towards urban areas. Predominately rural provinces, such as Western, Northern, Luapula and Eastern, are characterized by lower education, poor health outcomes, low life expectancy and lower incomes.

Improving the coverage, efficiency and effectiveness of essential services in agriculture, education, health, and water and sanitation may be crucial prerequisites for human development, but this is not sufficient. The ability of people and their institutions to participate in decisions that affect them, and the power they possess to influence change are important for sustainability. Service delivery must go hand-in-hand with high levels of accountability, the guarantee of basic human rights, and the empowerment of individuals and state and non-state institutions at the frontline of service delivery. For Zambia, this means that all efforts should be directed towards avoiding unnecessary delays in the planned devolution of decision-making to local authorities. It also entails the creation of space for the greater involvement of non-state actors in service delivery.

[1] The figures are based on the new methodology of calculating the HDI, as articulated in UNDP's 2010 global Human Development Report.

Agriculture

The growth of the agricultural sector has been mostly positive, but on average lower than that of others. Driven by good weather and supportive government policies, crop production, especially of maize and other cash crops, has been increasing, bringing some improvements in food security.

The sector remains highly vulnerable to global market instability, however, and has suffered a major decline in exports. In the face of rising fuel and energy prices stemming from the recent global financial and economic crises, the tilt in budget allocations towards areas such as the Fertiliser Support Programme and the Food Reserve Agency has been costly, without the desired effect of increased productivity. Allocations to other potential areas of growth, such as livestock, fisheries, rural infrastructure, irrigation, research and extension services, remain inadequate. Reorientation of government expenditures will be crucial in better service delivery and stronger sector performance.

Agricultural extension services require substantial improvements and better balancing between support for crops and livestock. Given the steady reduction in conventional extension service provision, service delivery led by the private sector has been playing an increasingly important role. Enhanced collaboration between government and NGO providers offers some win-win opportunities.

Achieving effective service delivery at the local level will require an enabling decentralized structure. Better-developed decentralized agriculture operations could be improved through complementary local structures for key line ministries, such as the Ministry of Lands, and the Ministry of Works and Supply.

While production-targeted programmes could achieve desired agricultural output levels, marketing the output presents unique challenges, especially for small-scale farmers. Resolving market problems for rural farmers will require capacity-building initiatives targeting both individuals and cooperatives.

Education

Reforms implemented in the education sector starting in 1990 have resulted in notable improvements in basic education, reflected in higher levels of access and participation. Girls, orphans and vulnerable children have achieved higher enrolment rates, and there is greater equity in education.

The quality of services remains poor, however. Beyond basic education, access and participation have been lower than desirable, and gender and regional disparities remain high. The slow pace of decentralization and the lack of a legal

framework for local institutions have resulted in limited local participation and accountability, which has hindered improvements in the quality of education and skills necessary for sustainable growth and human development.

Pre-school education requires more attention. There is a need to guarantee the rights of children at pre-school level and those of persons with disabilities. The recent reduction by half in the participation of children with special education needs in high schools, and the decline in the number of females receiving bursaries in basic schools, are examples of how such groups can be left unprotected in times of crisis.

Investments in school infrastructure and teaching staff have been impressive, but insufficient to meet demand and address brain drain and the challenges of HIV and AIDS. The fragmented institutional framework in the education sector could be reviewed, and various programmes streamlined and rationalized to increase the efficiency, effectiveness and equity of service delivery beyond post-basic education.

In line with its Sixth National Development Plan, Zambia could adhere to its target of increasing access to post-basic and tertiary education and improving quality at all levels by developing innovative ways to encourage public-private partnerships in education, among other strategies.

Health

Over the past two decades, health service delivery has improved and attained positive outcomes. Child and maternal mortality rates have declined; the spread of new HIV infections is halting; the incidence of tuberculosis has been reversed; and the malaria incidence has been reduced. More effort is required to accelerate progress towards the Millennium Development Goals (MDGs) and achieve even better health outcomes. Child and maternal mortality are still unacceptably high; epidemics are still a major cause of chronic illness and death; and nutrition has not improved since the early 1990s.

Accelerating investments and prioritizing packages of high-impact interventions in scaling up health services is warranted. There is global consensus as to what constitutes such packages for child mortality, maternal mortality, and HIV and other diseases. The consistent implementation of these, over a decade, could enable the country to significantly improve the health status of the population and advance human development.

Zambia's health workforce needs urgent expansion and continuous upgrade of its quality and performance. This requires concerted measures to enhance the capacities of training institutions, to motivate and retain staff in health facilities, particularly in rural areas, and to increase productivity. Options may also need to be considered to shift the skills mix of health workers in favour of polyvalent staff at the community and primary health care facility level, as close to the family as possible.

Access to adequate infrastructure, medical equipment and essential drugs at all times is required for assuring quality care. Targeted capital investments and technical support at all levels could strengthen health systems and improve service delivery. Support from the Global Fund for AIDS, Tuberculosis and Malaria has been critical in that regard, and could be complemented by domestic revenues for long-term sustainability.

Hospitals in Zambia could benefit from technical and managerial improvements related to patient management, quality assurance and other operational systems. Policy reforms in these areas are required to strengthen hospital capacities and improve service delivery.

Specialist treatment abroad at the expense of public funds is costly and inequitable. The building of local capacities to handle most specialist treatments and diagnostics, patient management tools and other requirements could therefore be explored.

Water and sanitation

Progress has been made in access to water in rural and urban areas over the recent past. This will

likely be sustained in the coming years. Improved investments in infrastructure and the capacities of providers could further expand coverage and enable access to clean water for the majority of the population.

The policy, legislative and regulatory framework could be further strengthened to increase the commercial sustainability, efficiency and quality of water services.

Sanitation services remain unsatisfactory. Solutions lie in options for enhanced financing, the diffusion of technologies that are appropriate and cost effective, and the adoption of approaches that build on the participation of beneficiaries in the design, development and management of the sanitation facilities, as well as in drilling boreholes and investing in rainwater harvesting.

Insights from the Sector Analyses

Agricultural production has increased and the country has in recent years made progress towards greater food security. The health sector has managed to reduce child mortality; maternal mortality; and the incidences of HIV, tuberculosis and malaria, although levels of morbidity and mortality from these health hazards are still unacceptably high. In basic education, access and participation have improved. More people in both urban and rural areas have access to clean water and sanitation, although the numbers are low relative to population.

Zambia has cases of effective and efficient service delivery. In all four sectors, progress has tended to emphasize growth, increased coverage and scale up of interventions. The quality dimension has lagged behind, and needs to immediately appear on the policy agenda in order to improve human development. More systematic dissemination of best practices and success stories, and the introduction of performance-based contracting are steps that could increase peer learning while focusing on achieving better quality.

Progress has been made in service delivery in all four sectors.

All four sectors face critical shortages of skilled staff, which compromises service delivery and human development. The productivity of existing staff is often very low. More could be attained if the current staff was better motivated, HIV and AIDS management was effectively incorporated in workplace programmes, tardiness was eliminated and more managerial time was allocated towards performance management. Programmes could be enacted or enhanced to improve the retention of skilled staff, particularly in rural areas.

Effectiveness and efficiency in the quality of services is a missing link for sustainable human development.

The private sector has the potential to augment the public provision of services. Nonetheless, all four sectors exhibit restraint in tapping into it. The recent approval of a Public-Private Partnerships Policy under the Ministry of Finance and National Planning has provided some space for sectoral dialogue in this regard, creating an opportunity for initiatives to enhance services.

Inadequately skilled human resources are a serious bottleneck for service delivery, aggravated by low motivation and productivity.

A shortage of staff affects the quality of services and partly accounts for the low level of human development in Zambia.

Quality improvements in service delivery are crucial for ensuring access to safe water.

Chapter 1

Service Delivery and Human Development

Zambia's Human Development Report 2011: Service Delivery for Sustainable Human Development in Zambia covers the period between 1990 and 2010. It presents both quantitative and qualitative data, mostly gathered through desk reviews and supplemented with interviews of key informants in Lusaka, and Central and Southern provinces. In this chapter, basic concepts for assessing human development and its links to service delivery are defined and placed within the context of the pursuit of the MDGs in Zambia. Detailed assessment of the MDGs, however, is beyond the scope of this report.

Chapter 2 discuses key policy developments over the stated period, and the role policy-making has played in shaping human development. Long-term trends in poverty and development are examined using contemporary monetary measures of poverty and general indicators of development. Chapter 3 presents long-term trends in Zambia's human development as measured by the HDI and other measures of human development introduced in 2010. These include the Inequality-adjusted Human Development Index (IHDI), the Gender Inequality Index (GII) and the Multidimensional Poverty Index (MPI). The indices were compiled using data from various national surveys on poverty conducted by the Central Statistical Office. Further explanations regarding the compilation and use of these indices are given in the Technical Note and Annexes to this report.

The rest of the report devotes a chapter each to agriculture, education, health, and water and sanitation. Key dimensions of service delivery are addressed, namely: the utilization of scarce resources to produce services equitably; efficiency in terms of the results-orientation of service delivery processes, as measured by accessibility, utilization and quality of services; and effectiveness or impact, in terms of tangible outcomes of service delivery classified by economic and social effects at the programme level, and ultimately made visible at the level of human development. The report ends with a presentation of general conclusions and recommendations for future action.

Conceptual Framework

Human development is defined as the process of expanding people's freedoms to live long, healthy and creative lives; to advance towards other goals that they have reason to value; and to engage actively in shaping equitable and sustainable development on a shared planet (UNDP 2010, p.

22). People are both beneficiaries and drivers of human development, as individuals and in groups. This definition is underpinned by the philosophical premise that all human beings desire to enjoy well-being, security, empowerment, justice and freedom. Fundamental to enlarging their choices is the building of human capacities—the range of things that people can do or be in life. Investing in people will enable growth and empower people, thus developing human capacities.

According to the 2010 global *Human Development Report,* the most basic capabilities for human development are to lead long and healthy lives, to be knowledgeable, to have access to resources and social services needed for a decent standard of living, and to be able to participate in the life of the community. Without these, many choices are simply not available, and many opportunities in life remain inaccessible.

The antithesis of human development is human poverty, defined by the United Nations as a condition of deficiencies in human development, namely, the lack of a long and healthy life, the lack of knowledge and the lack of a decent standard of living. Poor households have the right to sustain themselves by their labour, and to be reasonably rewarded and afforded some protection from external shocks. Many people identify water, education, health care and food security as their highest priorities. The delivery of basic services is thus central to reducing human poverty.

Service delivery is a problem-solving process that provides the means by which human development goals can be achieved in a systematic way—the delivery of inputs and outputs leading to certain outcomes or results that have socioeconomic impacts on individuals, households and communities. Service delivery can be usefully conceptualized as the relationship between policy makers, service providers and consumers of services, and encompasses both services and their supporting systems (Slaymaker et al. 2005).

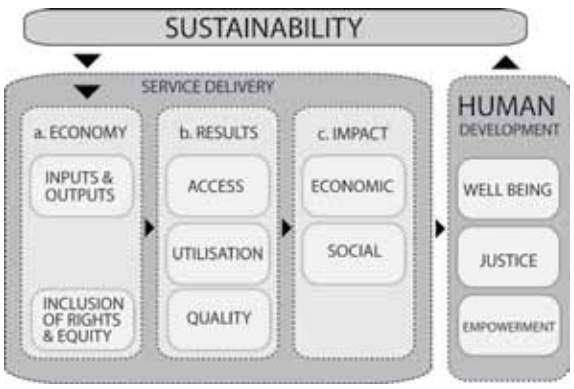
The term "service delivery" further carries with it the connotation of groups of actors (state or non-state) deriving income or livelihoods from providing goods and services to the general public, which in turn expresses appreciation by paying for services or keeping governments in power. Some services are delivered through costly infrastructure, while others may have very high working costs and are subject to externalities. Although the provision of some basic services such as education and health is largely the responsibility of governments, the private sector also has an important role to play. Since service provision is subject to market failures or externalities, however, the private sector acting alone is unlikely to be able to achieve the levels beneficiaries expect. Thus, service delivery is both a technical and governance issue. Determining how the government can assume this fundamental responsibility in a satisfactory manner is of critical importance.

The conceptual framework in Figure 1.1 shows a feedback relationship between service delivery, sustainability and human development. The service delivery process involves important policy choices that have several aspects, beginning with which services to deliver, how and for whom. These choices determine access, utilization and quality of services, which are important determinants of the level of human development. Following the 2010 global *Human Development Report*, the richness of the human development concept has been illustrated using three components: peoples' opportunities; process freedoms (affecting people's ability to shape their lives); and key principles of justice that shape processes and outcomes across people, time and space.

Several policy choices must be made. The 2010 global *Human Development Report* emphasizes that these are not unconstrained. Some are better for poverty reduction, human rights and sustainability. Others are less effective because they favour elites, dismiss freedom of association and deplete natural resources. When service delivery is founded on the concepts of human development, it will embrace issues of justice, equity and sustainability, thus emphasizing some

Conceptual framework: Linking service delivery to human development

FIGURE 1.1



services and their modes of delivery over others in an informed and democratic way. In the UN context, equity is the idea of fairness for every person; everyone has the right to an education and health care. No one should be excluded from such services because of their inability to pay.

Figure 1.1 further shows that service delivery has important socioeconomic impacts that will ultimately determine the level of human development and its sustainability. These will be reflected in various dimensions of social and economic well-being, namely poverty reduction, knowledge, health and environmental sustainability. The link between service delivery and the level of human development is not automatic, and in poor economies quite often requires action on the demand side.

For example, a close link between the quality of services in education and health and economic growth has been noted (Schweitzer 2007). Poverty and the absence of disposable income increase the chances that children are malnourished, suffer from avoidable diseases and disabilities, develop learning disabilities and drop out of school, thus perpetuating a cycle of poverty. The neglect of sanitation has been cited as a leading cause of disease and learning disabilities in children (ibid). Under these circumstances, improved access to education may not have the desired effect on knowledge. Service delivery needs to go hand-in-hand with investments in programmes that increase the income of the poor—community development, micro-credit, self-help groups, etc.—and measures to increase demand for education and health from disadvantaged and marginalized groups.

As successive human development reports have shown, beyond income and basic services, individuals and societies can be poor—and tend to remain so—if they are not empowered to participate in making decisions that affect their lives. Poverty reduction is better measured in terms of basic education, health care, nutrition, and water and sanitation, in addition to income, employment, and wages. Such measures must serve as a proxy for other important intangibles, such as feelings of powerlessness and lack of freedom to participate.

Empowerment is the process of enhancing the capacities of underprivileged individuals and groups through democratic practices at different levels. In accordance with the 2010 global *Human Development Report*, empowerment involves people as being more than just beneficiaries; their vision, ingenuity and strength are vital to advancing their own and others well-being. Being empowered means that they are able to bring about change in their own lives, families and communities, in part because supportive institutional structures are in place.

An important link between service delivery and human development involves sustainability. According to the United Nations, "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission). The limits placed on sustainable development have been recognized. Civil strife, global economic and financial crises, gender inequality, famine, diseases such as HIV and AIDS, environmental disasters and climate change have become common threats.

On the supply side, service delivery tends to be affected by governance, defined as "the exercise of economic, political, social, technological and administrative authority to manage a country's affairs at all levels. It comprises mechanisms, processes, and institutions, through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences" (UNDP 2001). A key measure of governance is the quality and availability of essential services such as health care and primary education services, which comprise a core element of the social contract. Public access to good services indicates that a society is well governed and enables the political leadership to draw continued support for its programs. The relationship between service delivery and governance has been summarized in Figure 1.2.

The accountability triangle

FIGURE 1.2

Source: World Bank, 2003

From a political economy perspective, different groups in society will have different visions about what makes "good" service delivery. The result may or may not involve the state providing services directly, as long as the services are in fact delivered. Figure 1.2 shows that services can be delivered through the long route of voice, compact and centralization, or the shorter route of devolution and empowerment, which brings frontline service providers and clients more closely together.

A critical ingredient is accountability. Non-profit and civic organizations can in the short term deliver critical services such as health care by acting in parallel with government. But longer-term sustainability requires strengthening accountability linkages through mechanisms of voice and compacts such as public-private partnerships, and developing government capacity so that the state can properly perform its decision-making functions.

Service Delivery and the Attainment of the MDGs

Achieving quality service delivery for the poor requires global action to complement actions by countries and local communities. At the global level, a commitment to this aim is reflected in wide acceptance of the human development paradigm, in which people are at the centre of development, bringing about development of the people, by the people and for the people. Over the last decade, this position has been strengthened by national and international commitments to achieve the MDGs. The goals are essentially an agenda for targeted improvements in the core areas of human development—to be knowledgeable, to have access to essential resources and social services, to acquire a decent standard of living and to be able to participate in the life of the community. Effective service delivery is critical in realizing the MDGs. The rest of this chapter provides a synopsis of Zambia's progress in this regard.

MDG 1: Eradicate extreme poverty and hunger

Between 1991 and 2006, Zambia achieved a modest reduction in extreme poverty of 7.5 percent. To attain the MDG target on extreme poverty, Zambia needs to reduce the proportion of people who live in extreme poverty by 21.5 percent between 2006 and 2015 (UNDP and the Government of the Republic of Zambia 2011).

The challenges militating against expedited reduction of extreme poverty and hunger include the inefficient allocation of resources in the agriculture sector, which has hindered rural development. There are severe income inequalities, poor access to business finance and capital, and historical public expenditure biases that favour urban areas. To the extent that women are disproportionately represented among extremely poor populations, interventions targeting this group would yield better results, but women continue to face constraints in accessing productive resources and essential public services.

By contrast, good progress has been made in reducing the national proportion of people who suffer from hunger; only a reduction of two percent is required to achieve the 2015 target. Declining inflation and supportive social policies are largely responsible for this.

To achieve the MDG on poverty and hunger, the Government could come up with a holistic approach, which could be incorporated into the national development plans. Specific interventions could include rolling out carefully targeted and sustainable social cash transfers, support for raising smallholder farm productivity, business development services, small grants, microfinance for poverty reduction, the promotion of livestock productivity and employment in labour-intensive sectors.

MDG 2: Achieve universal primary education

Good progress was made towards the attainment of this goal. Both net enrolment and the number of pupils reaching grade seven grew steadily over the years, and the targets have been achieved. Adult literacy rates, however, declined between 1990 and 2004; no data are available to determine recent trends. Factors explaining the otherwise positive environment include promulgation of the national educational policy, which allowed sub-sector policies and programmes to be articulated. The Ministry of Education has implemented the free education policy enunciated in 2002, along with steps to reach the global Education for All Goals adopted in 2000, which call for ensuring that all boys and girls are able to attend school.

Gender mainstreaming through the Programme for the Advancement of Girls' Education has also helped improve enrolment.

Remaining challenges include the poor quality of education, and the loss of human capital, teachers in particular, due to HIV and AIDS. The poor conditions of service in the sector have resulted in teacher resignations. Indicators of quality shortfalls comprise poor achievement levels, poor learning environments, a lack of learning and teaching materials, and high pupil-teacher ratios. Due to high poverty levels, especially in rural areas, some children fail to enrol in schools. Inconsistencies in the implementation of the free basic education policy, such as boarding fees, prohibit some children from accessing education.

MDG 3: Promote gender equality and empower women

Between 2005 and 2009, the ratio of girls to boys in primary school was fairly stable, at a level close to the target ratio of one to one. But the ratio of girls to boys in secondary school has undergone a notable decline, from 0.92 in 1990 to 0.88 in 2009.

Important achievements include the adoption of the Gender-based Violence Act, a modest increase in the number of women with titles to land, and an increasing (albeit modest) proportion of women in leadership positions. The proportion of girls in tertiary education has increased, although with marked fluctuations. In terms of political representation, the country is far from reaching the Southern African Development Community standard of a minimum of 30 percent for women.

Factors accounting for partial achievements in attaining MDG 3 include the implementation of the Joint Gender Support Programme developed by the Government and cooperating partners to strengthen the national capacity to mainstream gender. Capacity-building activities at all levels of the Government have been stepped up. Further achievements are constrained by delays in enacting vital pieces of legislation, however, such as the full domestication of the UN Convention on the Elimination of All Forms of Discrimination against Women.

Enhancing collaborative service delivery among government units would further improve the chances of attaining MDG 3, along with sustaining capacity building for gender mainstreaming. Early pregnancies and marriages, girls dropping out of school, the disproportionate impact of HIV and AIDS on women, and the persistence of attitudes and beliefs that rate men as superior to women all adversely affect gender equality and women's empowerment.

MDG 4: Reduce child mortality

There has been a reduction in infant mortality from 95 per 1,000 live births in 2003 to 70 per 1,000 in 2007, compared to the target of 30 per 1,000 by 2015. The under-five mortality rate similarly fell from 191 per 1,000 live births in 1992 to 119 per 1,000 in 2007, compared to the target of 63.6 per 1,000 by 2015. Improved immunization between 1992 and 1996 appears to explain some of the decline in mortality rates. Progress in this area has remained stagnant at 84 percent of all one-year-old children since 2002.

Among the interventions to achieve these targets are: the Reach Each District strategy, introduced to increase immunization coverage; National Immunization Days and annual Child Health Weeks; improved logistics, vaccines and cold chain facilities; and the integrated management of childhood illnesses. Further reduction in child mortality will require more concerted actions, especially those targeting HIV and AIDS. Significant reductions in infant mortality will require reducing paediatric HIV infection levels and investing in the prevention of mother-to-child transmission. As with other services, over-dependence on donor funding in this area is a major threat to sustainably achieving the targets. The human resource crisis continues to exert a severe negative impact as well.

MDG 5: Improve maternal health

There has been a reduction in the level of maternal mortality from 729 deaths per 100,000 live births in 2002 to 591 deaths per 100,000 live births in 2007. The target is to reduce the maternal mortality ratio to 429 deaths per 100,000 live births by 2015. The main factors that have contributed to progress comprised: the scaling up of long-term methods of family planning to 33 districts; the expansion in the provision of emergency obstetric care from 18 to 50 districts;

improved referral systems; and the growth of safe motherhood groups from 12 in 2008 to 43 by the end of 2009.

There are, however, some major factors hindering the attainment of this goal. These include inadequate access to health facilities, which forces many women, especially in rural areas, to deliver at home. The scourge of HIV and AIDS is a further constraint. Over-dependence on donor funding and shortfalls in human resources affect this goal as well.

MDG 6: Combat HIV/AIDS, malaria and other major diseases

With the recorded decline in the prevalence of HIV, from 16 percent in 2002 to 14.3 percent in 2007, the target of keeping prevalence under 16 percent has already been achieved. HIV incidence is estimated at 1.6 percent or 82,000 new infections annually (Government of the Republic of Zambia 2009).

New malaria cases, which had increased from 255 per 1,000 in 1990 to 412 per 1,000 in 2006, declined to 252 per 1,000 in 2008. This is in line with the target of 255 by 2015.

Support for achieving this goal has come from the development and implementation of policies such as the National HIV/AIDS/STI/TB Policy; the promotion of multisectoral coordination and collaboration through a parliamentary act that established the National HIV/AIDS/STI/TB Council; the introduction of HIV and AIDS policies in work places; more partnerships among major stakeholders; and the establishment of more ART centres countrywide. Other factors have included: enhanced training of medical staff to administer ART; recruitment and retention of medical personnel; development of universal access initiatives; continued expansion of voluntary counseling and testing (VCT); improved measures for provision of safe blood transfusion services; paediatric initiatives to provide ARTs to children; and the identification of six key drivers of the epidemic (i.e., multiple and concurrent sexual partners, low and inconsistent condom use, low levels of male circumcision in most provinces, mobility and labour migration, high-risk behaviours among sex workers and in male-to-male sexual relationships, and vertical transmission from mother to child).

Challenges remain related to negative cultural practices and the poor economic status of women and girls, which prevent them from demanding safer sex; a lack of comparative data for reporting and policy formulation; adverse factors impacting VCT uptake (such as fear, stigma and discrimination, and inadequate privacy, space and confidentiality); health personnel inadequately trained to handle the increased disease burden related to HIV and AIDS; human resources shortages due to mortality mostly attributed to AIDS-related complications and migration; low condom usage and low male circumcision.

MDG 7: Ensure environmental sustainability

This MDG requires that Zambia and other countries integrate the principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources. Assessing performance on reversals is difficult because of the absence of reliable data. Available data show that the area covered by forests has declined from 59 percent in 1996 to 38 percent in 2010, while the population using solid fuels increased from 86 percent in 1990 to 88 percent in 2007. The consumption of ozone-depleting products declined from 95.57 tons in 1996 to 43 tons in 2004, but a lack of data since 2005 makes it difficult to assess recent trends.

MDG 7 calls for halving the proportion of people who do not have sustainable access to safe drinking water and sanitation by 2015. The proportion of Zambia's population without access to improved water sources declined from 53 percent in 1996 to 43 percent in 1998, but has stagnated at around 40 percent in recent years. The percentage of the population without access to improved sanitation has increased since 1991, when it was at 26 percent, although it seems to have stagnated at around 36 percent since 1998. Contributing to this poor performance is the lack of overall investment in water supply and sanitation.

MDG 8: Developing a global partnership for development

Zambia has regained and sustained an impressive record of macroeconomic stability, achieved single-digit inflation and consistently

had growth rates over five percent for the past five years. Official development assistance (ODA) increased from US $754 million in 2002 to US $918 million in 2009, and the Highly Indebted Poor Country (HIPC) and Multilateral Debt Relief (MDR) initiatives reduced Zambia's debt-servicing obligations. External public debt dropped from US $6 billion in 1999 to US $934 million in 2006, but subsequently increased to US $1.5 billion in 2009.

In 2010, Zambia was considered the sixth best country in Africa for doing business. Significant foreign direct investments have flowed in. From 1995 to 2005, the country received an annual average of US $211 million. From 2006 to 2009, the figure rose to US $960 million annually. The focus now must be on improving competitiveness, where Zambia ranks at 115 out of 139 countries (World Economic Forum 2011).

Policies should be targeted at easing supply-side constraints in transportation, storage, communications and the access of local entrepreneurs to open markets, particularly for agricultural produce. Efforts to expand the domestic revenue base through effective taxation policy and its full administration are critical, as ODA shows greater volatility and may even decline in coming years. The use of fiscal space for increased investments in human development is a strategy used effectively by countries that show significant progress on human development. Easing regional and global trade barriers through common agreements will be key to a more robust and open trading regime that spurs balanced growth. At the same time, cooperating partners must also meet the agreed ODA target of 0.7 percent of their gross domestic product (GDP) to support the achievement of the MDGs by 2015.

Conclusions

Service delivery is central to attaining human development. It is a technical and governance issue, but it also impinges on people's rights. Determining how the government, in partnership with private entities, can discharge its duties in a satisfactory manner is of critical importance.

For Zambia, service delivery bottlenecks are among the key factors slowing progress on a number of the MDGs. Although the country is making some progress, the magnitude and pace of change vary by goal. A more supportive environment and more effective delivery of essential services is required to accelerate and make coordinated progress on all eight MDGs.

The University Teaching Hospital is an important centre for staff development. While being a tertiary level health care institution, it has not been supported by a district hospital providing primary and secondary level care for the people of Lusaka.

Photograph: UNDP Zambia

Chapter 2

Zambia's Policy Environment

The Policy Context

During Zambia's immediate post-independence period, most policy reforms placed people at the centre, as the Government sought to address the inequities affecting its citizens through deliberate state-supported service delivery. There was widespread state ownership of assets and government intervention in production, marketing, and distribution of goods and services in all sectors of the economy and society. Free access to health care, education and other social amenities helped reduce some inequities between rural and urban areas. This was consistent with what has currently been termed the basic rights approach.

Over time, however, with a slump in the copper mining industry in the 1980s and 1990s, and the slow pace of economic diversification, the Government's ability to provide services declined. This partly explains the rapid fall in human development prior to 1996. While the mining sector has been key in providing employment opportunities and contributing to export earnings, its tax contributions were less than expected during the Fifth National Development Plan, although they have increased in recent years (Ministry of Finance and National Planning 2010). Partly as a result of the impact of mining rents on exchange rates, other sectors such as agriculture became internationally less competitive and did not perform according to potential, resulting in a development process biased towards urban areas.

The economy remains dependent on the copper mining sector, which has weak linkages to the rest of the economy.

Beginning in 1992, comprehensive economic policy reforms were introduced, marked by state withdrawal from direct ownership of assets and the curtailment of government interventions. Economic liberalization, commercialization and privatization of services, as well as greater democratization of political, social and economic institutions came to constitute the main focus of public policy. Pluralism has allowed many actors to enter the systems as agents, service providers and lobbyists. The role of the state has changed, along with needs for publicly funded services and the types of institutions required to provide them. The move towards decentralization has become stronger, with increased demands for fiscal devolution and the provision of services by municipalities. These are among the major factors prompting changes in service delivery over the last 10 years.

Owing in part to the long period of economic stagnation, however, and despite progress in key areas such as privatization and budgetary reforms,

TABLE 2.1

Trends in total poverty, 1991-2006

Provinces	1991	1993	1996	1998	2004	2006	Change 2004-2006
1. Central	70	81	84	77	76	72	-4
2. Copperbelt	61	49	65	65	56	42	-14
3. Eastern	85	91	85	79	70	79	9
4. Luapula	84	88	87	82	79	73	-6
5. Lusaka	31	39	58	53	48	29	-19
6. Northern	84	86	87	81	74	78	4
7. North Western	75	88	90	77	76	72	-4
8. Southern	79	87	83	75	69	73	4
9. Western	69	69	69	69	83	84	1
Total	70	84	78	73	68	64	-4

Source: Central Statistical Office

overall change has been slow. Economic efficiency and effectiveness have been less than desired.

Poverty Trends

Poverty[2] as measured in monetary terms has preoccupied policy makers; all economic policies and programmes implemented in recent years have poverty eradication as the recurring theme[3]. Noteworthy are the Poverty Reduction Strategy Paper (2002-2004), the Transitional National Development Plan (2002-2005), the Fifth National Development Plan (2006-2010) and the Sixth National Development Plan (2011-2016). The outcome between 2004 and 2006 was a modest decline in poverty at the national level, mostly favouring urban areas. According to Table 2.1, the level of poverty, estimated at 64 percent in 2006, was still very high, although poverty reached its peak in 1993 at 84 percent and has been on the decline since then, reaching its lowest level in 2006. Rural poverty increased from 78 percent in 2004 to 80 percent in 2006. At 84 percent in 2006, Western Province was experiencing the highest level of poverty. The Eastern, Northern and Southern provinces witnessed increases in overall poverty from 2004 to 2006, while poverty declined in Lusaka and Copperbelt provinces. The 2006

TABLE 2.2

Trends in selected macroeconomic indicators, 2000-2010

Indicator	2004	2005	2006	2007	2008	2009*	2010*
Annual inflation	18	18.3	9.1	10.6	12.4	9.9	7.2
GDP growth rate	5.4	5.2	6.2	5.7	6.0	6.3	7.1
GDP per capita (purchasing power parity, PPP)*	1,060.78	1,127.0	1,208.5	1,295.6	1,364.8	1,428.6.	N/A
Real GDP per capita growth	2.1	2.0	3.0	3.1	2.6	3.3	4.0
Total debt service (% of exports of goods, services and income)	22.1	11.1	3.4	2.5	3.1	3.8	N/A
Share of domestic debt to total debt	15	31	70	67	66	N/A	N/A
Total fiscal debt to exports ratio	-493	-271	-79	-70	-70	N/A	N/A
Total fiscal debt to GDP ratio	148.6	87.9	29.8	25.8	26.8	28.6	26.9
Fiscal deficit to GDP ratio	-6.3	-8.3	-7.4	-4.8	-6.0	-6.7	-5.9
Income tax to GDP ratio	7.8	7.6	7.5	8.4	8.5	7.7	7.5
Consumption tax to GDP ratio	5.2	5.0	4.6	4.9	4.0	3.8	3.9

Source: Ministry of Finance and National Planning, International Monetary Fund World Economic Outlook dataset, April 2011.
** Preliminary*
N/A = not available.

[2] At the time of research for this report, Zambia's 2010 Living Conditions Measurement Survery was underway; the analysis in this section cannot use it's finding.
[3] This section focuses on monetary poverty. The multidimensional aspects of poverty will be discussed in Chapter 3.

Living Conditions Monitoring Survey (Central Statistical Office 2006) found a large proportion of extremely poor people (51 percent) and a small proportion of the moderately poor (14 percent). Eighty percent of poor people resided in rural areas; of them, 67 percent were extremely poor. This situation has only slightly improved over the years. In urban areas, the decline in poverty was more pronounced, exemplified by a phenomenal growth in the proportion of non-poor people from 16 percent to 66 percent between 1996 and 2006, compared to from 11 percent to 20 percent in rural areas over the same period. Contributing to these trends were the effects of policies for trade liberalization, foreign investment and the sale of government housing, among others, that mostly favoured urban areas. As the ensuing discussion will show, these policies did little to encourage growth in agriculture, given the absence of complementary service delivery in the sector.

Macroeconomic Indicators

An examination of macroeconomic indicators in Table 2.2 shows improvements in almost all of them. The rate of inflation has kept a consistent downward trend, from 18 percent in 2004 to 7 percent in 2010. Over the 2001-2010 period, the country registered consistent growth in real GDP per capita, from 2.1 percent in 2004 to approximately 4 percent in 2010. In light of long periods of limited economic growth and high inflation levels in the 1990s, the recent achievements are commendable.

There has been overall improvement in macroeconomic indicators.

The ratio of debt servicing to revenues has exhibited a negative trend from 2004 to 2008. The country has been mobilizing revenues at a rate of growth greater than it has been spending on debt servicing. This is an accomplishment in the implementation of prudent fiscal policies, given the long history of indebtedness and crippling debt-servicing obligations. The effort was well assisted by the international community through the HIPC and MDR initiatives. The ratios of total fiscal debt to exports and GDP have also improved, where the rate of growth of exports and GDP is higher than that of the total fiscal debt over the reference period. Despite a welcome reduction in debt servicing, however, the ratio of domestic debt to total debt has remained high, and actually increased from 15 percent in 2004 to 66 percent in 2008. This constitutes a major constraint on the flexibility of the overall budget in terms of increased resources for service delivery.

TABLE 2.3

Growth in GDP by sector, 2001-2010

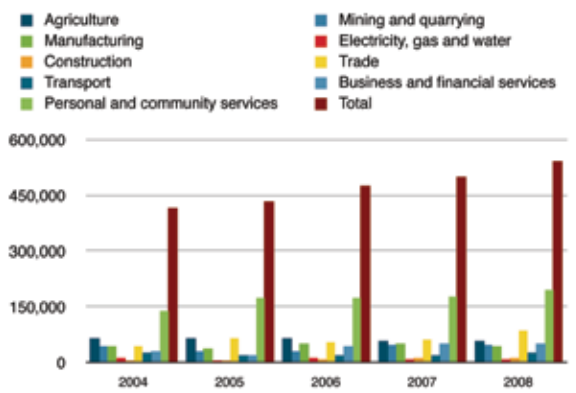
Kind of economic activity	2001	2005	2006	2007	2008	2009	2010*	Period average
Agriculture, forestry and fishing	(2.6)	(0.6)	2.2	0.4	2.6	7.2	6.6	2.34
Mining and quarrying	14.0	7.9	7.3	3.6	2.5	20.3	16.8	10.61
PRIMARY SECTOR	1.9	2.5	4.1	1.7	2.5	12.4	10.9	5.18
Manufacturing	4.2	2.9	5.7	3.0	1.8	2.2	4.4	4.22
Electricity, gas and water	12.6	5.4	10.5	1.0	(1.2)	6.8	4.7	3.33
Construction	11.5	21.2	14.4	20.0	8.7	9.5	7.2	15.20
SECONDARY SECTOR	7.5	10.0	9.8	10.0	4.7	6.2	5.8	8.11
Wholesale and retail trade	5.4	2.4	2.0	2.4	2.7	2.3	4.3	3.76
Restaurants, bars and hotels	24.4	11.7	16.1	9.6	5.0	(13.4)	10.3	8.19
Transport, storage and communications	2.8	11.0	22.1	19.2	15.8	7.6	14.9	10.64
Financial institutions and insurance	0.1	3.3	4.0	4.1	8.7	5.2	3.9	3.98
Real estate and business services	3.5	3.2	3.2	3.1	3.0	2.8	3.0	3.42
Community, social and personal services	5.8	11.4	9.0	12.5	11.7	8.6	1.5	6.43
TERTIARY SECTOR	4.7	5.4	6.7	7.1	7.2	3.9	5.7	5.32
Total GDP at market prices	4.9	5.3	6.2	6.2	5.7	6.4	7.1	5.56

Source: Central Statistical Office 2010.

** Preliminary*

Trends in the level of employment

FIGURE 2.1



Source: Central Statistical Office.

Economic Growth by Sector

There have been substantial changes over time in the contributions of specific sectors to overall growth. All three major sectors of the economy as per broad classifications of GDP (namely, primary, secondary and tertiary) have recorded growth in the period from 2001 to 2010 (see Table 2.3). Over this period, GDP growth averaged 5.6 percent per annum. The lowest growth was experienced in agriculture at 2.3 percent; consequently, the sector's share of GDP declined from 16 percent in 2001 to 12.6 percent in 2010, along with its contribution to overall GDP growth. The fastest growth was in the construction sector at 15.2 percent, followed by the mining and manufacturing sectors, both averaging 10 percent growth per annum. In terms of contributions to GDP, the share of construction increased from 5 percent in 2001 to 11 percent in 2010; that of mining rose from 7 percent to 10.1 percent; and that of manufacturing declined from 10.4 percent to 9.2 percent.

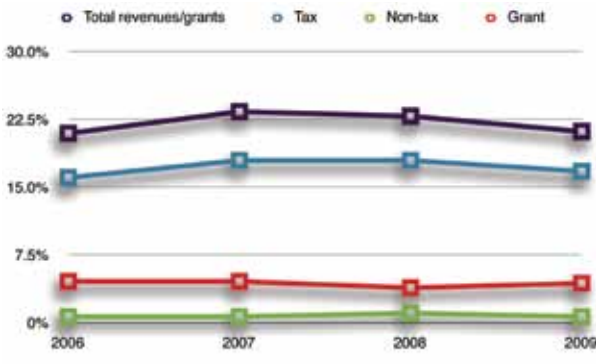
Growth in the economy was led by the mining, construction, transport, storage and communications sectors.

For poverty reduction, the performance of the agriculture sector is crucial. Although positive, agricultural sector growth has been sluggish, triggering a vicious cycle of slow growth, low income levels, enduring poverty, low productivity and slow growth. Registering a major impact on rural poverty will require sustained and higher growth in the agriculture sector, given that the majority of the rural population derive their livelihoods from agriculture, fisheries and forestry.

Otherwise, for the short and medium term, economic growth as experienced in the recent past will continue to be driven by sectors that bypass the rural areas and rural poor. To date, economic growth has been heavily biased towards one province, Copperbelt, and largely driven by capital-intensive sectors such as construction, mining, transport and telecommunication.

Trends in fiscal revenues (in percent of GDP), 2006-2010

FIGURE 2.2



Source: Ministry of Finance and National Planning.

Employment Creation

Static levels of formal employment stem partly from the limited diversification of the economy. According to Labour Force Survey Reports (Central Statistics Office 2005, 2008), the labour force increased by 10 percent between 2005 and 2008, while total employment grew by 26.4 percent. These trends were largely attributed to informal sector employment, which grew by 29.3 percent between 2005 and 2008. Formal sector employment grew by 5.3 percent, but its proportion decreased from 12 percent of total employment in 2005 to 10 percent in 2008. In the formal sector, male employment accounted for 71 percent compared to 29 percent for females. The level of unemployment remained around 15.5 percent of the total labour force; 70 percent of unemployed people were in urban areas and 30 percent in rural areas.

Figure 2.1 shows that most formal employment is in personal and community services. This sector experienced an upward swing in 2007 following the drive to recruit more teachers and health

personnel. Employment levels have remained static for the most part, however. In recent years, as trade has overtaken agriculture as the next largest employer, and employment opportunities in the latter have declined, Zambia's growth has become less inclusive and has failed to reduce poverty.

The 2006 Living Conditions Monitoring Survey shows that most people find employment in the informal sector, where the conditions of work are inadequate. In 2006, 82 percent of the labour force was employed in the informal sector, which is largely dominated by agriculture. In rural areas, 82 percent of people depend on the informal sector, and 90 percent of them are women. As will be discussed further in Chapter 4, better service delivery in agriculture is the most prudent way to improve human development for most people in Zambia.

Government Revenues and Expenditures

In the first half of the 1990s the focus of fiscal policy was on expenditure containment to redress the fiscal imbalances of the previous years. Subsequently, in addition to sustaining macroeconomic stability, fiscal policy was directed at providing more resources to areas that enhance service delivery and promote private sector growth.

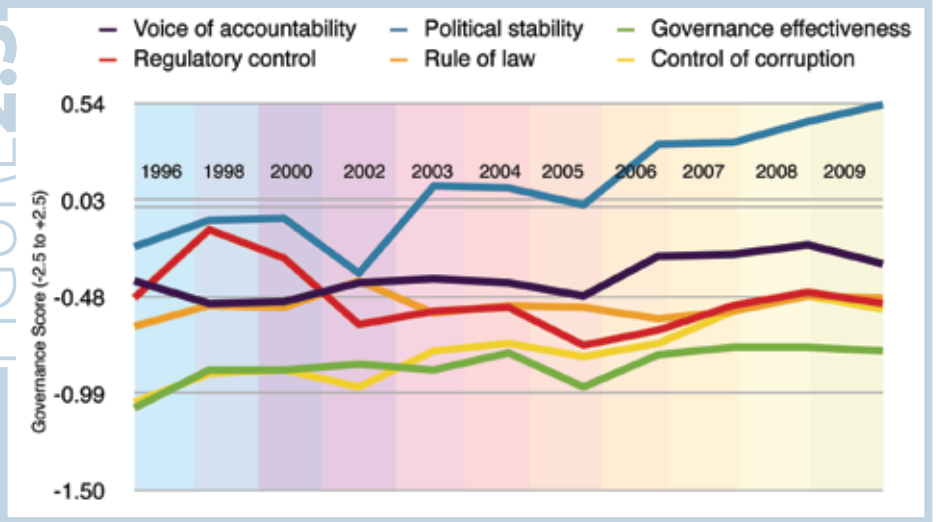
Revenues and grants during the period of the Fifth National Development Plan (2006-2010) were generally around 23 percent of GDP, though grants as a percentage of GDP were below target in some years, fluctuating around 20 percent.

In the wake of increased fiscal space as a result of the HPIC and MDR initiatives, expectations were that domestically financed capital expenditures would double between 2007 and 2010. However, partly as a result of the global financial and economic crises capital expenditures only increased by 34 percent. This has made it difficult for the Government to provide quality services, as relevant infrastructure has not been expanded as envisaged. Nevertheless, in line with the Fifth National Development Plan objective of improving service delivery, recruitment continued in the health, education and public safety sectors.

The absolute levels of tax revenues increased for all categories, with direct taxes recording the highest increase. But as shown in Figure 2.2, the relative contributions of various revenues have remained largely unchanged from 2006 to 2010. The performance of non-tax revenue has been poor over the period. In effect, Zambia has a narrow tax base drawing from a few workers in the formal sector.

Zambia's tax revenues as a share of GDP have generally been falling, from 19.2 percent in 2000 to 16.8 percent in 2009, which has been attributed to an erosion of the tax base through the proliferation of tax incentives and exemptions across and within sectors. Other factors are the negative effects of tax competition in the region and the poor performance of the indirect tax, in particular the domestic value-added tax.

FIGURE 2.3 Trends in governance indicators in Zambia, 1996-2008



Source: Kaufmann et al. 2009.

Governance

Zambia has had a political system based on multiparty democracy since 1991. Figure 2.3 presents trends the country's scores in the Worldwide Governance Indicators since 1996. The indicators measure six dimensions of governance: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption. They are calculated for 212 countries and territories, with a range between -2.5 and 2.5. A higher score indicates a better position. Zambia's position is below the global average, but an overall improvement in all dimensions since 2002 is worth noting. Political stability scores the highest, while control of corruption and government effectiveness received the lowest marks.

There are several factors that account for relatively improved perceptions about Zambia's governance in recent years. The current administration has declared zero tolerance for corruption, and there have been several changes in the higher levels of the civil service. A number of corruption cases were reported and some addressed in 2009, on issues including financial improprieties in the health and roads sectors. Capacity challenges within the legal and judicial systems, however, mean that not all higher-level cases have been disposed of in court.

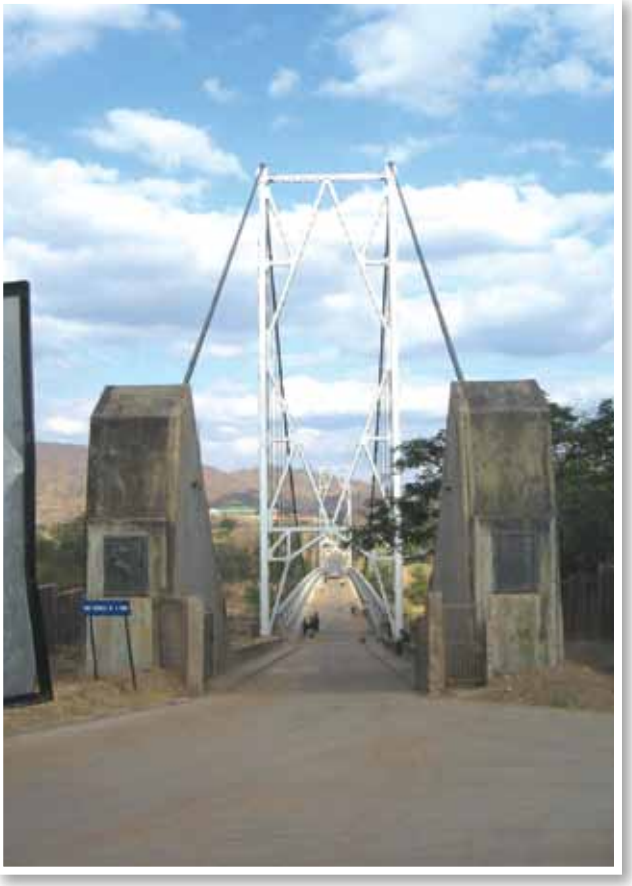
Despite some delay, the Decentralisation Implementation Plan formulated in February 2006 is expected to roll out in 2011, with the Government and stakeholders having reached agreement on financing. Dissemination of information by the Government and the participation of the private sector and civil society in decision-making processes are improving. Of particular relevance is the active participation of the private sector in sectoral advisory groups, which provide a forum for discussion among stakeholders from the Government, private sector and civil society.

Emerging Patterns in the Delivery of Services in Zambia

The 1998 Zambia *Human Development Report* observed that the country was not according a high priority to service delivery because of low recognition of human rights, the misleading impression that social sectors are not productive, and a lack of incentives for private sector involvement in the provision of services. The country has gone through a number of changes since then, developing a better understanding of the role of the social sectors and increasing budgetary allocations for them. There has been greater recognition of rights, especially for women, children and people living with HIV and AIDS, though not as much progress has been made in safeguarding rights of people with disabilities. More space in providing services has been created for the private sector through market mechanisms, and the role of NGOs in delivering services to the poor has increased. NGO involvement is mostly short-lived, however. Building institutional capability should continue through the development of public-private partnerships.

Conclusions

After a protracted period of low and negative economic growth, the recent resurgence of growth is commendable. The performance of the agriculture sector, a key sector for employment creation and poverty reduction, remains low and inconsistent, however. The continued dominance of mining in the tradable goods sector, with its weak linkages to other sectors, has limited the impacts of employment creation and service delivery policies. High poverty levels, which have persisted despite macroeconomic stability, confirm that while macroeconomic stability is necessary, it is not a sufficient condition for reducing poverty and improving human development. Accelerating human development will require interventions that go beyond mere economic growth and macroeconomic stability, and that are grounded in inclusive, pro-poor strategies. Finding solutions to deliver services to the large population of poor people is paramount.



Top: The informal sector is the main source of employment in Zambia. Right: The Infrastructure challenges are an obstacle for human development.

Photographs: UNDP Zambia

Chapter 3

The State of Human Development in Zambia

This chapter presents trends in Zambia's human development as measured by the HDI. As a composite index of human development, the HDI measures a country's average achievement on three basic dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. It is a partial measure; other dimensions, such as empowerment, that are more difficult to capture with statistical indicators are not included. Service delivery, as elaborated in the previous chapter, undermines or promotes capacities and opportunities under the three dimensions of the HDI.

In 2010, UNDP introduced several adjustments in the indicators and methodology used to calculate the HDI, in order to further strengthen its statistical integrity. First, "mean years of schooling" and "expected years of schooling" were used to capture the knowledge dimension instead of the previously used "adult literacy rate" and "gross enrolment ratio." Second, gross national income (GNI) per capita was employed instead of the conventional GDP per capita. Third, a geometric mean was used that normalized indices measuring achievements in each dimension, ¬instead of simple arithmetic averages. These methodological improvements result in substantial changes that make comparison with previous HDI figures impossible. For the purpose of analysing long-term trends, this report uses the hybrid HDI, which is an index that combines the original HDI and the new functional form described in the Technical Notes.

Other measures of human development were also introduced in 2010. These include the IHDI, GII and the MPI.

Long-term Trends in Zambia's HDI

Zambia's HDI value for 2010 was 0.395, positioning the country in the low human development category; it ranked 150th out of 169 countries. Table 3.1 shows that between 1980 and 2010, Zambia's HDI value rose from 0.382 to 0.395, an increase of 3 percent, which made Zambia the 92nd country in terms of highest HDI growth over 20 years. Progress on both the overall HDI and its components was irregular. In the 1980s, the HDI rose sharply, reaching the highest value ever, at just above 0.42 in 1990, only to fall over the next decade to the lowest value ever, at just below 0.35 in 2000. By 2010, Zambia's HDI was still below its 1990 level. With respect to its components, during the 1980s, only the education dimension improved, while in the

TABLE 3.1

Long-term trends in Zambia's HDI, 1980-2010

	Life expectancy at birth	Expected years of schooling	Mean years of schooling	GNI per capita (PPP US$)	HDI value
1980	51.9	7.6	3.3	1,533	0.382
1985	52.1	8.5	5.3	1,273	0.410
1990	51.1	7.9	7.5	1,226	0.423
1995	46.7	7.6	6.1	1,009	0.371
2000	42.0	7.2	5.9	1,031	0.345
2005	42.9	7.2	6.3	1,153	0.360
2010	47.3	7.2	6.5	1,359	0.395

Source: HDR 2010 The Real Wealth of Nations: Pathways to Human Development
**These are based on consistent time series data, new component indicators and new methodology*

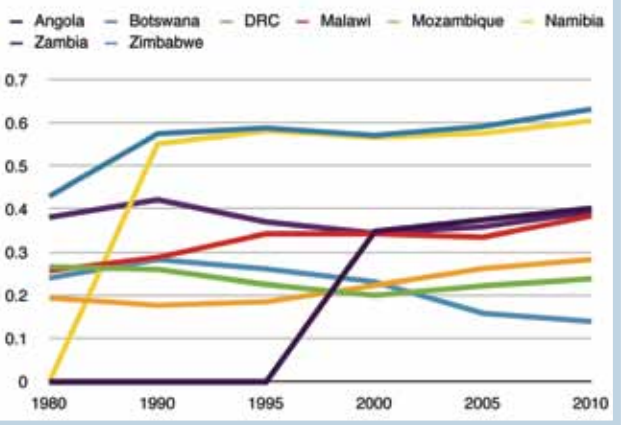
1990s all three dimensions deteriorated. Since 2000, all components have improved.

Comparing 1980 and 2000, Zambia's life expectancy at birth decreased by almost five years, mean years of schooling increased by over three years and expected years of schooling decreased by less than one year. The country's GNI per capita decreased by 11 percent.

Zambia's 2010 HDI of 0.395 was above the average of 0.389 for Sub-Saharan Africa. It was also above the average of 0.393 for low human development countries[4]. A comparison of Zambia with its immediate neighbours (Figure 3.1) showed three groupings: Botswana and Namibia were distinctly higher; Angola, Malawi and Zambia were in a second group that has converged over time; and the Democratic Republic of Congo, Mozambique and Zimbabwe were at the lowest level, showing some divergence since 2000.

HDI evolution Zambia and its neighbours (Source: UNDP, 2010)

FIGURE 3.1



Source: UNDP, Human Development Report 2010, The Real Wealth of Nations: Pathways to Human Development

According to the 2010 global *Human Development Report*, worldwide, other than the countries in the third category, which have faced civil strife and economic upheavals during the recent past, no other country has faced Zambia's deterioration, stagnation and sluggish improvement in HDI over the past 30 years. As the 2007 Zambia Human Development Report observed, this has happened in a country that has had no political disturbances since independence in 1964, and boasts of immense development potential given her abundant natural resources, fertile land and a conducive climate for agriculture.

A "perfect storm" of shocks on three fronts is responsible for the decline and stagnation in the country's human development. First, inappropriate macroeconomic policies in the 1970s and 1980s caused stagnation and even a decline in economic growth. These were followed by orthodox stabilization and structural adjustment efforts that in the 1990s sharply increased unemployment, reduced real wages and significantly increased the incidence of extreme poverty. At the same time, expenditures for publicly provided services such as health care, education and social protection were reduced. The positive economic growth of the recent past is apparently still insufficient to fully redress the decline in the standard of living and in human development originating from the "two lost decades." Consequently, Zambia's GNI per capita of US $1,359 for 2008 was below the US $2,050 average for Sub-Saharan Africa (Table 3.2).

Policy choices in the past explain much of Zambia's low HDI performance.

Second, Zambia found itself at the epicentre of the HIV pandemic in Central and Southern

[4] There were 42 countries in the low human development category, with the majority of them being in Africa. The first country was Kenya, while the last one was Zimbabwe. Zambia was 23rd out of the 42

TABLE 3.2

Comparison of developing regions—HDI and its components, 2010

Region	HDI	Life expectancy at birth (years)	Mean years of schooling	Expected years of schooling	GNI per capita (PPP 2008 US $)
Arab States	0.588	69.1	5.7	10.8	7,861
East Asia and the Pacific	0.643	72.6	7.2	11.5	6,403
Europe and Central Asia	0.702	69.5	9.2	13.6	11,462
Latin America and the Caribbean	0.704	74.0	7.9	13.7	10,642
South Asia	0.516	65.1	4.6	10.0	3,417
Sub-Saharan Africa	0.389	52.7	4.5	9.0	2,050
Zambia	0.395	47.3	6.5	7.2	1,359

Source: UNDP, Human Development Report 2010, The Real Wealth of Nations: Pathways to Human Development

Africa (it had an adult prevalence of 23 percent in 1991-1992, 15.6 percent in 2001-2002 and 14.3 percent in 2007), but for a long time, little was done to fight the crisis. The destructive impacts of HIV on Zambian society include, among others, the fact that the country now has the third lowest life expectancy at birth in the world (47.3 years, per UNDP 2010) and losses in GDP per capita have been significant (estimated at 5.8 percent by Resch et al. 2008).

Third, as discussed in Chapter 2, Zambia has experienced a systematic erosion of its governance institutions, which in comparison to most countries remain below average. Although improving since 2002, most governance institutions remain weak. In a context of weak institutions, higher government spending on goods and services does not necessarily lead to improved long-run progress in human development, as was the case from 1988 to 1992 and 2001 to 2005. Lower government spending drastically accelerated a downward spiral in human development from 1993 to 2000. The country's trajectory was characterized by neither high growth nor high human development from 1980 to 2000. Since 2001, Zambia has been successful in pursuing growth, but continues to perform poorly in human development, specifically in ensuring a long and healthy life for citizens.

Comparisons of the Human Development Index

This section presents HDI values for Zambia and its nine provinces based on national statistics and calculations[5]. It applies the new methodology for calculating the HDI, with the results appearing in Table 3.3.

The findings indicate that Zambia's HDI went from 0.360 in 2000 to 0.367 in 2004, and to a

TABLE 3.3

HDI values for Zambia and its provinces, 2000, 2004 and 2008

Region	HDI 2000	2000 Rank	HDI 2004	2004 Rank	HDI 2008	2008 Rank	Change in HDI
Zambia	0.360		0.367		0.409		0.042
Central	0.367	5	0.350	5	0.398	3	0.048
Copperbelt	0.441	1	0.427	2	0.480	1	0.053
Eastern	0.330	6	0.345	6	0.354	6	0.009
Luapula	0.295	9	0.303	8	0.350	7	0.046
Lusaka	0.437	2	0.440	1	0.465	2	0.025
Northern	0.312	8	0.321	8	0.326	8	0.005
North Western	0.372	3	0.370	7	0.382	5	0.012
Southern	0.371	8	0.367	4	0.394	4	0.027
Western	0.316	7	0.292	9	0.321	9	0.029

Sources: Calculations using the Census of Housing and Population 2000, Living Conditions and Monitoring Survey 2006, Central Statistical Office GDP estimates.

[5] There are some variations with respect to the HDI figures used in the 2010 global *Human Development Report*.

further 0.409 in 2008, a positive trend. All nine provinces have also shown improvements in their respective HDIs during the same period, with economic growth as the major driver. A further examination of provincial HDI values and rankings reveals the following.

The more urbanized provinces, such as Copperbelt (0.480) and Lusaka (0.465), have the highest HDIs for 2008, whereas the lowest-ranking provinces remain Western (0.321), Northern (0.326), and Luapula (0.350). This HDI pattern reflects the urban-rural dichotomy of the Zambian economy. Copperbelt and Lusaka are the only provinces with HDIs that are above the national average of 0.409.

The highest rise in HDI between 2004 and 2008 has been in two urban provinces (Copperbelt at 0.053 and Central at 0.048) and one rural province (Luapula at 0.046). The lowest improvements in HDI were experienced in Northern (0.005) and Eastern (0.009) provinces. Both Copperbelt and Lusaka provinces experienced improved economic activities, resulting in increases in income levels and the rise in HDI.

In terms of HDI ranking, Lusaka Province lost the number one ranking to Copperbelt between 2004 and 2008, falling back to number two, the level it occupied in 2000. Western Province still occupies the last position, rank nine, with Northern and Luapula at ranks eight and seven, respectively.

The HDI pattern mirrors the national poverty map, on which Copperbelt and Lusaka have relatively lower proportions of extremely poor households compared to the mostly rural, remote provinces—Western, Northern, Luapula and Eastern. While the urban provinces have seen improved economic activities, conditions in rural areas have not changed much, with poverty levels remaining high and accompanying low HDI indicators.

Explaining Trends in Human Development Status

What factors explain the observed changes in Zambia's HDI? The multidimensional nature of human development calls for caution in the interpretation of these shifts. Some explanations can be derived from the component indices that constitute the HDI, presented in Table 3.4. In general, the highest contribution to the HDI is from improvements in life expectancy, followed by education and then income.

Life expectancy

Table 3.4 shows that the national life expectancy index for 2008 (0.495) is higher compared to the education (0.437) and income (0.317) indices, though it falls below the Sub-Saharan average, on account of relatively lower per capita health spending, a lower ratio of physicians per 10,000 people, a high HIV prevalence rate and still relatively high child mortality.

There have been modest improvements in life expectancy arising from declining infant and child mortality.

Life expectancy is the biggest component index for Zambia's 2008 HDI. It reflects some of the recorded improvements in the health sector, such as declining infant and child mortality. The provincial disparities in life

TABLE 3.4

HDI component indices for Zambia and its provinces, 2008

	Life expectancy index	Education index	Income index	HDI
Zambia	0.495	0.437	0.317	0.409
Central	0.521	0.434	0.279	0.398
Copperbelt	0.573	0.494	0.391	0.480
Eastern	0.525	0.363	0.232	0.354
Luapula	0.429	0.415	0.241	0.350
Lusaka	0.497	0.480	0.423	0.465
Northern	0.342	0.415	0.245	0.326
North Western	0.543	0.415	0.248	0.382
Southern	0.454	0.445	0.303	0.394
Western	0.422	0.385	0.203	0.321

Sources: Calculated using Central Statistical Office Census data, Living Conditions Monitoring Survey 2006.

TABLE 3.5

HDI and IHDI component indices for Zambia and provinces, 2008

Region	Life expectancy Index	Education Index	Income index	IHDI value	HDI value	Loss due to inequality, %
Zambia	0.494	0.422	0.282	0.389	0.409	5
Central	0.519	0.424	0.257	0.384	0.398	4
Copperbelt	0.572	0.468	0.356	0.457	0.480	5
Eastern	0.523	0.359	0.228	0.350	0.354	1
Luapula	0.428	0.391	0.215	0.330	0.350	6
Lusaka	0.496	0.429	0.302	0.401	0.465	16
Northern	0.340	0.406	0.233	0.318	0.326	3
North Western	0.542	0.393	0.229	0.366	0.382	4
Southern	0.452	0.424	0.252	0.364	0.394	8
Western	0.422	0.371	0.187	0.308	0.321	4

Sources: Calculated using Central Statistical Office Census data, Living Conditions Monitoring Survey 2006.

expectancy are quite apparent: Northern (0.342), Western (0.422) and Luapula (0.429) have the lowest life expectancy indices; while Copperbelt (0.573), Central (0.521), North Western (0.543) and Eastern (0.525) have the highest. Lusaka (0.497) ranks fifth due to a higher HIV prevalence rate.

Education

Table 3.4 shows that the education index has significantly changed—it has been drastically lowered with the adoption of new indicators. This is a reflection of the fact that despite increased gross enrolment in schools, the "mean years of schooling" and "expected years of schooling" remain low. For 2008, Eastern (0.363) and Western (0.385) have the lowest indices, whereas Copperbelt (0.494) and Lusaka (0.480) have the highest. For Eastern Province, life expectancy and education achievements do not seem to move in the same direction or at the same pace. The poor formal sector employment opportunities in rural areas may have dampened the rural population's quest for education, resulting in the observed low "mean years of schooling" and "expected years of schooling."

High "enrolments" are yet to translate into higher "mean years of schooling."

Income

The income dimension represents the lowest index of the 2008 HDI at 0.317. Lusaka (0.423) has the highest income index, followed by Copperbelt (0.391). The lowest income indices are in Western (0.203), Eastern (0.232), Luapula (0.241) and Northern (0.245) provinces. This again is a reflection of the urban-driven economic growth that the country is experiencing. Most impressive has been the growth of non-traditional exports, mining and construction. The rural provinces have yet to experience any significant growth that could improve their respective income indices.

The incomes for the majority of rural populations have remained low, thus perpetuating low rural HDI.

The Inequality-adjusted Human Development Index

The IHDI adjusts the HDI for inequalities in the distribution of each of the three dimensions across the population. It is based on a distribution-sensitive class of composite indices and draws on a family of inequality measures. In this sense, the IHDI is the actual level of human development (accounting for inequality), while the HDI can be viewed as an index of "potential" human development (or the maximum level of HDI) that could be achieved if there was no inequality. The "loss" in potential human development due to inequality is given by the difference between the HDI and the IHDI, and can be expressed as a percentage. The results of these calculations are in Table 3.5.

The IHDI shows that inequalities in human development in Zambia are quite large. In terms of cross-regional comparisons, the IHDI follows a pattern similar to the HDI.

TABLE 3.6

GII values for Zambia and provinces, 2008

	GII 2000	2000 Rank	GII 2004	2004 Rank	GII 2008	2008 Rank
Zambia	0.770		0.771		0.739	
Central	0.878	9	0.773	4	0.775	6
Copperbelt	0.796	8	0.751	2	0.680	2
Eastern	0.752	1	0.876	8	0.744	3
Luapula	0.781	6	0.773	5	0.763	5
Lusaka	0.758	3	0.699	1	0.648	1
Northern	0.785	7	0.786	7	0.781	7
North Western	0.774	5	0.880	9	0.889	9
Southern	0.772	4	0.782	6	0.788	8
Western	0.754	2	0.759	3	0.762	4

Sources: Calculated using Central Statistical Office Census data, Living Conditions Monitoring Survey 2006, Central Statistical Office 2008, parliamentary secondary data and 2007 Zambia Demographic Health Survey.

The two most urbanized provinces, Copperbelt and Lusaka, have a higher IHDI of 0.457 and 0.401, respectively, whereas the three rural, poor provinces (Western, Northern and Luapula) are at the bottom end with 0.308, 0.318 and 0.330, respectively. It is evident from differences in HDI and IHDI that inequality is most pronounced in Lusaka, which has experienced one of the highest economic resurgences in the recent past. Lusaka has the greatest loss (16 percent) due to inequality and therefore contributes proportionally more to the total loss in HDI. This is due to uneven growth in income between Lusaka Urban and Chongwe districts on the one hand, and Kafue and Luangwa districts on the other. In addition, the mean years of schooling are much higher in Lusaka and Kafue districts, and lowest in Luangwa.

The Gender Inequality Index

The GII, presented in Table 3.6, reflects women's disadvantages in three dimensions: reproductive health, empowerment and the labour market. Reproductive health is measured by maternal mortality and adolescent fertility rates; empowerment is calculated by the share of parliamentary seats held by each gender, and attainment of secondary and higher education by each gender; and economic activity is measured by the labour market participation rate for each gender. The index shows the loss in human development due to inequalities between female and male achievements in these dimensions. It ranges from 0, which indicates that women and men fare equally, to 1, which indicates that women fare poorly in all dimensions.

Table 3.6 shows that gender inequality is deeply entrenched in Zambia. No provinces achieve anywhere near zero, and there is no positive trend from 2000 to 2008. For 2008, the worst-performing provinces are North Western (0.889), Southern (0.778) and Northern (0.781). These have the lowest numbers of women in Parliament, the lowest proportion of women with secondary education and the lowest female participation in the labour force (except Northern Province), and an overall lower female empowerment index.

In Zambia as a whole, women hold 14 percent of parliamentary seats. Nineteen percent of adult women have a secondary or higher level of education, compared to 34 percent of their male counterparts. For every 100,000 live births, 591 women die from pregnancy-related causes, and the adolescent fertility rate is 146 births per 1,000 live births. Female participation in the labour market is 74 percent compared to 86 percent for men. The result is a GII value for Zambia of 0.739 in 2008.

The Multidimensional Poverty Index

The MPI identifies multiple deprivations at the individual level in health, education and standard of living. It uses micro-data from household surveys, and—unlike the IHDI—all indicators needed to construct the measure are taken from the same survey. Each person in a given household is classified as poor or non-poor depending on the number of deprivations his or her household

TABLE 3.7

Indicators and the calculation of the MPI, 2004 and 2006

	2004				2006			
	Head count	Intensity of poverty	MPI	Ranking	Head count	Intensity of poverty	MPI	Ranking
Zambia	0.563	0.428	0.241		0.583	0.440	0.257	
Central	0.618	0.424	0.262	3	0.634	0.436	0.276	4
Copperbelt	0.351	0.406	0.142	2	0.393	0.413	0.162	2
Eastern	0.652	0.449	0.293	7	0.690	0.450	0.311	6
Luapula	0.720	0.440	0.317	9	0.771	0.471	0.363	9
Lusaka	0.309	0.390	0.121	1	0.298	0.396	0.118	1
Northern	0.651	0.425	0.277	6	0.702	0.452	0.318	8
North Western	0.643	0.423	0.272	5	0.717	0.442	0.317	7
Southern	0.610	0.431	0.263	4	0.600	0.431	0.259	3
Western	0.698	0.439	0.306	8	0.687	0.446	0.307	5

Source: Central Statistical Office 2010.

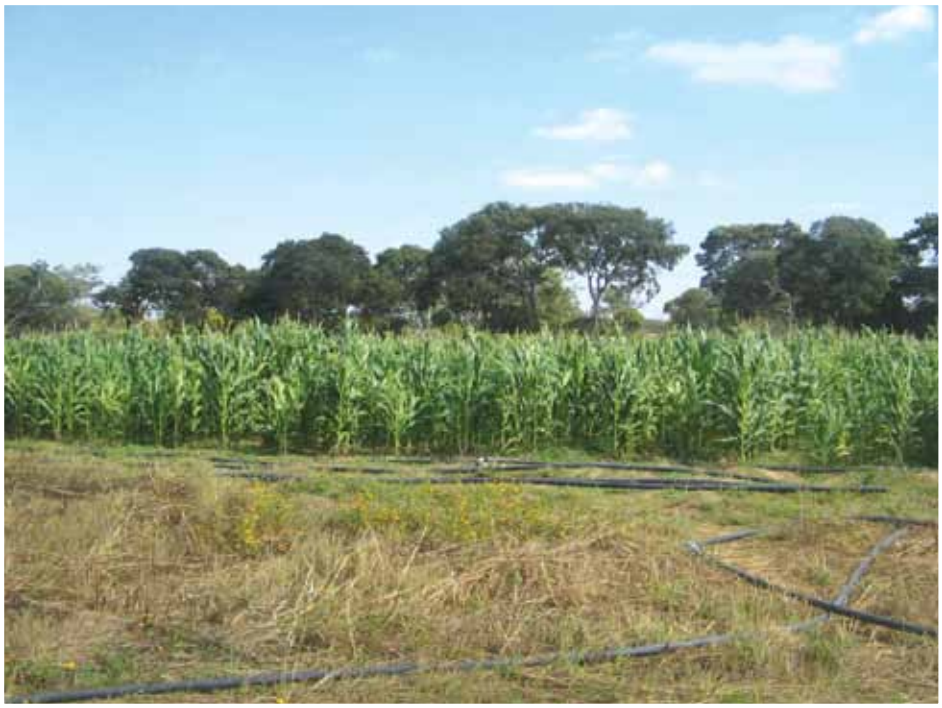
experiences. These data are then aggregated into a national measure of poverty.

The results of the MPI calculations for Zambia are in Table 3.7. They indicate that 58.3 percent of the Zambian population lived in poor households in 2006, compared to 56.3 percent in 2004; that the average poor person was deprived in 44 percent of the weighted indicators in 2006, compared to 42.8 percent in 2004; and that the share of the population that is multidimensionally poor (adjusted by the intensity of the deprivations suffered) was 0.257 in 2006, compared to 0.241 in 2004. These calculations point to a deteriorating picture of poverty between 2004 and 2006. Lusaka Province had the lowest proportion of poor households, followed by Copperbelt and Southern. Luapula, Northern and North Western had bigger proportions of poor households.

Conclusions

The analysis in this chapter has indicated that Zambia's human development has stagnated over 20 years. During this period, other developing regions and countries were able to make significant improvements in their HDIs. Zambia now finds itself among the bottom 20 countries in its HDI ranking, with an extremely low life expectancy, insufficient improvements in education and health indices, and a per capita income below the Sub-Saharan average. Recent economic growth and social sector improvements and outcomes offer opportunities for a rebound, however.

Comparisons of provincial HDIs based on national statistics and calculations reveal an economic and human development process biased towards urban areas. Rural provinces, especially Western, Northern, Luapula and Eastern, may require specific targeting and programming in order to break a vicious cycle of low education and health outcomes, low life expectancy and lower incomes.



Top: a Cooperative at work marketing the 2010 maize crop
Bottom: a maize demonstration field of a service provider

Photographs: UNDP Zambia

Chapter 4

Agriculture

Given Zambia's rainfall patterns and soil fertility, agriculture should become an engine of growth, but many obstacles stand in the way. Despite its potential, the agriculture sector remains underdeveloped. It is highly vulnerability to external factors, such as through its dependence on rain-fed crops. Policies to steer and sustain growth have had limited impact, a situation exacerbated by dwindling service delivery.

The sector requires a wide range of services to ease access to inputs, training and extension services, post-harvest management and markets. Since services must be delivered mostly to poor and dispersed populations in the presence of market failures, different types of agents are needed to deliver them. Prior to the structural reforms of the 1990s, most required services were delivered through the public sector. This approach had its flaws. Since then, policy reforms aimed at ensuring efficiency and effectiveness have resulted in increased private sector and NGOs participation. In the midst of widespread poverty, controversy continues to reign over which services are necessary, how they ought to be delivered, and what people receiving the services should pay for them.

Service Delivery Framework

The Ministry of Agriculture and Cooperatives, like the education and health ministries, is relatively decentralized at both the provincial and district levels. The headquarters is charged with setting policy and planning agendas, while provincial and district level offices perform supervisory and implementation roles. Owing to budgetary constraints, the lower levels have not been able to effectively perform their functions. Further impacting them is the lack of counterpart structures of other key sector ministries, such as the Ministry of Land and the Ministry of Works and Supplies, which affects agriculture service delivery. The involvement of non-state actors in the provision of extension services has alleviated some pressure on the public sector.

The Ministry of Agriculture and Cooperatives has undergone wide-ranging changes over time. It once combined agronomy, food, fisheries and livestock mandates. Recently, it was divided into two separate units, the Ministry of Agriculture and Cooperatives and the Ministry of Livestock and Fisheries Development. This was expected to resolve a biased concentration on crop production, and limited development of the livestock and fisheries sub-sectors[1] .

[1] Recent changes have been introduced by the Administration that came out of the 20 September 2011 tripartite elections. These are not discussed in this report, which focuses on events through 2010.

To institutionalize the Ministry of Livestock and Fisheries Development, various pieces of legislation are in the process of being enacted, while others are being repealed. Current legislation at the bill stage includes: the Animal Health Bill of 2010; the Animal Identification Bill of 2010; the Dairy Industry Development Bill of 2010; and the Veterinary and Veterinary Para-Professionals Bill of 2010. Legislation being repealed includes: the Tsetse Control (Repeal) Bill of 2010; the Cattle Cleansing (Repeal) Bill of 2010 and the Cattle Slaughter Control (Repeal) Bill of 2010.

Changes in the institutional framework have resulted in lean staffing levels at the headquarters of both ministries, where the two are sharing some departments, such as planning. This has negatively affected their operational effectiveness as well as overall service delivery. Challenges in coordination and resource sharing are more pronounced at the district levels. Local governments have hardly had any role in the delivery of services to agricultural communities.

A feasibility study conducted prior to separating the functions of livestock and fisheries from the Ministry of Agriculture and Cooperatives could have averted current operational and coordination challenges.

Policy and Institutional Context

The objectives outlined in the National Agricultural Policy include ensuring national and household food security; generation of income and employment; and contribution to sustainable industrial development. To achieve these objectives, the policy outlines strategies that include: strengthening and monitoring the liberalization of markets and facilitating private sector development; diversifying agricultural production; strengthening and facilitating the provision of agricultural services; developing and promoting appropriate technology; and fostering irrigation development.

Although the agriculture sector was led by the private sector prior to Independence, Government involvement subsequently reduced private sector participation, which adversely affected productivity. The hallmark of state intervention in the sector was the subsidy policy, applied even in areas without suitable agronomic conditions. The subsidies imposed a fiscal strain on the Treasury, contributing significantly to the budget deficit, and reducing the space for public investment in the sector.

Market-based reforms began in 1991. Proponents of liberalization argued that the free market was better at allocating scarce resources than the State. Controlled prices taxed producers, which limited incentives to increase production. The removal of subsidies and controls was expected to result in higher output prices, which would in turn act as an incentive for increased production. The state did not completely exit from the sector, retaining some key functions, such as the provision of subsidized inputs.

The liberalization of agriculture marketing, while providing fiscal relief, inadvertently disadvantaged small-scale farmers, who were not able to market their produce. They were forced to sell to speculative marketing agents at low prices.

TABLE 4.1

Allocations of the agricultural budget by category by percent, 2006-2010

Category	2006	2007	2008	2009	2010
Personal emoluments	12.9	9.9	13.2	10.4	12.7
Recurrent departmental charges	6.0	13.7	11.2	12.7	10.8
Grants and other payments	0.9	0.4	0.5	0.3	0.5
Poverty reduction programmes	41.4	36.2	31.7	45.5	45.3
Capital expenditures	0.1	0.3	0.4	3.4	3.4
Agricultural shows	0.3	0.2	0.1	0.2	0.2
Agricultural development programmes	32.3	33.2	31.0	12.5	20.3
Allocations to other ministries	6.0	6.2	10.7	14.9	6.9
Total	100	100	100	100	100
% share of national budget	6.0	9.0	6.0	8.3	8.1

Sources: Agricultural Consultative Forum/Food Security Research Project 2006, 2007, 2008, 2009 and 2010.

TABLE 4.2

Breakdown of allocations under the poverty reduction programmes by percent, 2006-2010

Category	2006	2007	2008	2009	2010
Irrigation support	0.7	2.4	2	1	0.1
Commercialization of farm blocks	2.2	2.6	2.2	0	0
Animal disease control	1.5	1.6	3.3	4.2	2.5
Livestock development	0	0.9	0.6	0.6	0.4
Fertilizer Support Programme	74	38.2	62.2	75.6	78
Strategic Food Reserves	18.6	52.1	26.9	17.4	18.1
Cooperative education and training	0.3	0.7	0.2	0	0
Others	2.2	0.7	2.7	0	0.9
Total	100	99.2	100.1	98.8	100
Total ZK billion	198.8	196	198.2	196.6	199.9

Sources: Agricultural Consultative Forum/Food Security Research Project 2006, 2007, 2008, 2009 and 2010.

Other negative impacts came from the reduction in extension services. After a period of relative inactivity following the liberalization policies, reconstituted cooperatives have not been able to achieve their pre-reform effectiveness, partly because their formation is tied to government support for agricultural inputs.

Budget Performance

Budgetary allocations to the agriculture sector show that these rose from 6 percent in 2006 to 8.1 percent in 2010 (Table 4.1). A decomposition of the sector budget shows that from 2006, poverty reduction programmes were given over a third of total allocations. Although the amount allocated in 2010 showed a marginal decrease in nominal terms (4.1 percent compared to 2009), this budget line accounted for 45.3 percent of the total budget.

More resources ought to be allocated to productivity-enhancing programmes such as irrigation in order to improve sector performance.

Table 4.1 shows that allocations to agricultural development programmes increased by 7.8 percent in 2010, but were still below the 2008, 2007 and 2006 levels. Budget lines for capital expenditures and allocations to other ministries for programmes such as dams and rural infrastructure development received less than 10 percent of the budget.

Between 2006 and 2010, the allocation to personal emoluments and recurrent department charges were on average 11.8 and 10.9 percent, respectively. Allocations to these areas impact service delivery through, for instance, the sector's inability to assign skilled personnel to extension services. Limited allocations to recurrent departmental charges limit staff productivity, such as by curtailing field visits or monitoring and evaluation.

On average, allocations to poverty reduction programmes have maintained an upward trend between 2006 and 2010. The programmes include irrigation support, land development and the Farmers Input Support Programme, among other items, as detailed in Table 4.2. A breakdown of the budget line shows that the majority of funds went to the Fertilizer Support Programme and the Strategic Food Reserves. The 2010 combined allocation to the two programmes was 92.6 percent, leaving all five other programmes to share the remaining 7.4 percent.

The skewed distribution of the poverty reduction allocations has short-changed services such as irrigation and support for livestock production. Although the country has experienced growth in the production of maize, this may have come at the cost of increased inequality, since pricing policies may represent a de facto transfer of rent from the maize-consuming population to the big commercial farmers. Areas critical for enhancing productivity, such as crop science, extension programmes, infrastructure development, and a stable and supportive policy environment have not received the requisite support.

Capacity Building for Service Delivery

An adequate level of capital expenditures is essential for ensuring sustained service delivery. Over the last five years, capital expenditures as a proportion of the total agricultural budget have

been on the increase (Box 4.1). They rose from less than 1 percent of the agricultural budget between 2006 and 2008 to 3.4 percent in 2009 and 2010. Agricultural development funds (in the form of loans to the Government from multilateral agencies and grants from bilateral donors) are used to cover both capital and recurrent expenditures for agricultural development programmes.

A coordinated approach to agricultural development that includes adequate budgeting for complementary sectors, such as those under the ministries of lands, and works and supply, is key to sustaining the delivery of agricultural services

The programmes contribute to service delivery by supporting the capacity building of smallholder farmers and staff from the Ministry of Agriculture and Cooperatives, infrastructure rehabilitation such as rural roads and agricultural finance. Capital expenditures rely mostly on donor support for infrastructure development. Programme coordination, human resources constraints and problems of alignment with national development agendas remain problematic.

The proportion of funds allocated to other ministries as a percentage of the total agricultural budget has shown considerable decline, falling from 14.9 percent in 2007 to 10.7 percent in 2008 and finally to 6 percent in 2010 (Table 4.1). These funds are used for such functions as the construction of roads and dams under the Ministry of Works and Supply, and land development under the Ministry of Lands. The consequences of these reductions are limited provision and improvement of services by the affected ministries, which in turn impacts agricultural service delivery.

The Ministry of Agriculture and Cooperatives and the Ministry of Livestock and Fisheries Development have 10 agricultural training institutions. These are charged with training ministry staff, particularly frontline workers. Recent improvements have enabled them to better carry out their mandate. The curriculum has short- and long-term courses, and is structured so that it caters to both local and regional markets. Short-term courses are meant for serving officers, and are tailored to identified needs.

While there have been some improvements in the quantity and quality of roads in general, feeder roads in almost all rural areas are in a deplorable state. Surveys show that most farmers perceive transport as the main constraint to increased productivity. High transport costs also inhibit the private sector from penetrating outlying areas.

Inadequate road infrastructure limits the effective distribution of agricultural inputs and the marketing of outputs.

Because of the infrastructure constraints, small-scale farmers are often left without a ready market for their produce, which leaves them open to speculative dealers. At best, they secure very low prices for their produce, and at worst, they lose their produce due to inadequate storage and marketing facilities. Lately, the penetration of mobile phones in rural areas has been impressive, and farmers are feeling the gains of improved communication.

The Irrigation Development Programme, which is focused on infrastructure development and irrigation support, is a neglected area. The Fifth National Development Plan Mid-Term Review showed that throughout the country, "a total of 9 irrigation schemes, 3 dams and one weir were completed, while works in 13 other irrigation schemes were on going" (Ministry of Finance and National Planning 2009). In general, irrigation development has been marked by poor coordination, inadequate funding, weak funding absorption capacity by some ministries and agencies, and lack of coordination among

BOX 4.1

Budget patterns and implications for service delivery

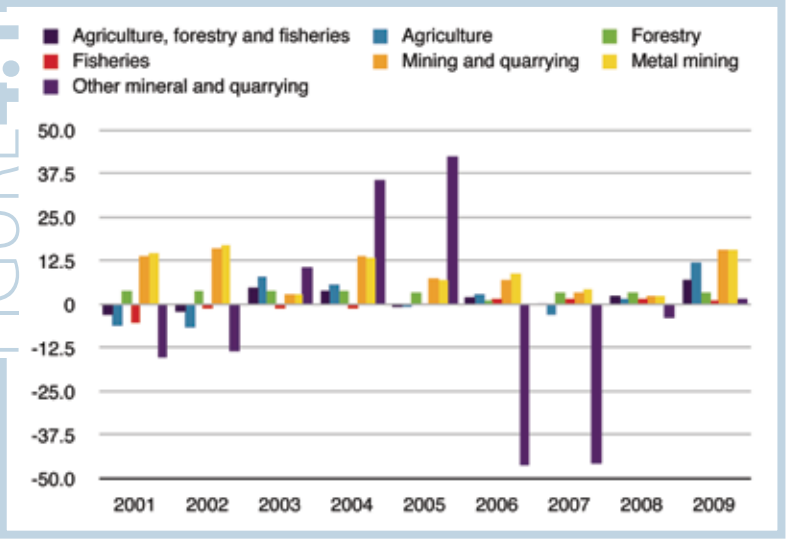
Limited capital expenditures restrict physical infrastructure, such as training facilities and housing, which affect agricultural extension services.

Biased allocations to the Farmers Input Support Programme and Food Reserve Agency programme have limited funding for other core activities, such as irrigation, and training and extension services that are important for sustained growth. The two programmes favour urban consumers of agricultural products over farmers, who would benefit more from activities that reduce their production costs over the longer term.

The low allocations to personal emoluments, while aimed at achieving a lean and effective public service, exert undesirable impacts on services.

Percentage contribution to real GDP by sub-sector

FIGURE 4.1



Sources: Central Statistical Office, The Monthly Bulletin, October 2010

responsible ministries and cooperating partners. Disjointed efforts and inadequate coordination with beneficiaries has reduced ownership and use of irrigation infrastructure. Funding has mostly failed to trickle down from the Ministry of Agriculture and Cooperatives headquarters to lower organs, a state of affairs that is explained principally by limited fiscal decentralization.

Sector Performance

Contribution to human development

The agriculture sector in Zambia is a key determinant of human development in a number of ways. It is a major contributor to national income, but has yet to reach its full potential. As the only source of employment for many rural dwellers, its role in poverty reduction is pivotal. It is also important in ensuring national food security and improving nutrition. The ensuing discussion sheds further light on these issues.

Contribution to national income

The sector continues to make positive contributions to national income, but with wide swings (Figure 4.1). Although the country has experienced good rainfall in the recent past, performance has not been consistent. Performance in the forestry sub-sector has been low but mostly positive, while growth in the fisheries sub-sector has been slow, but steady, remaining below five percent from 2001 to 2009.

As discussed in Chapter 2 (Figure 2.1), formal employment levels in agriculture have exhibited a poor level of performance, remaining static over the long term, even though the sector is one of the largest employers in the country and has vast potential for substantially increasing employment opportunities. On average, there has been a seven percent reduction in the number of formal jobs created by the sector between 2004 and 2008.

The inability of the agriculture sector to significantly create employment opportunities is mirrored by high poverty levels, especially in rural areas, where most people derive their incomes from farming.

The discussion in Chapter 2 has already noted that most employment in the sector is informal and not well paying. This is mirrored by high poverty levels in rural areas. Western Province has the highest concentration of poverty, with the proportion of the poor estimated at 83.6 percent. A possible explanation for the poor performance of the province is its dependence on some of the least resilient agricultural activities, such as fishing and livestock, which have been adversely affected by the depletion of natural resources and animal diseases.

Contribution to poverty reduction

The role of agriculture in reversing poverty has been recognized in all the development plans. For instance, the Poverty Reduction Strategy Paper (PRSP) identified the agriculture sector as one of the driving engines for economic growth to reduce poverty, and called for high and sustained

expansion. This must be done as part of an integrated development strategy, with rapid and sustainable growth for which the elasticity of poverty reduction with respect to growth is high.

Given the large population deriving livelihoods from agriculture, sustained growth would allow the employed access to better incomes, and thus improved living conditions. The benefits are, however, contingent on the extent of diversification and value addition that farmers engage in. Lacking this, growth has not been sufficient to trigger a major impact on poverty reduction. Ventures into agribusiness that enable sustainable and faster improvements for small-scale farmers have so far received little support.

Moreover, agricultural activities have few links to the manufacturing sector. This situation requires rejuvenation of manufacturing to reduce mineral dependence and economic instability that leaves smallholder agriculture vulnerable.

Partly, the poor performance of the agriculture sector is a reflection of its structure, which is characterized by a few competitive, large-scale commercial sub-sectors, and a large but predominantly small-scale subsistence sub-sector located in hard-to-reach areas.

The following strategies could help improve and balance performance:

- Ensure that macroeconomic policies are supportive and not disruptive of agricultural development;
- Achieve a better integration of agriculture in the global value chain through proactive state intervention in negotiation for better markets;
- Improve the state of infrastructure, especially in rural areas, where it constrains the evolution of small-scale farmers into medium- and large-scale farmers; and
- Ensure that farmers have access to credit and crop insurance, since this is one of the most important supply constraints in production, especially for non-traditional exports.

Contribution to food security and nutritional status

Agriculture directly affects human development in terms of food availability and nutrition. Greater production can translate into improved nutrition, but only if the majority of people are able to access nutritionally balanced food. Factors such as hygiene and the prevalence of diseases may have equally important roles in nutritional status.

Recent gains in crop production have been matched with improved food security, at least at the macro-level. The extent of micro-level food security is, however, contingent on other factors, such as rural household involvement in food and non-food crop production, the inclination to export and the gender distribution of power at the household level. In Zambia, these factors have combined to make micro-level food insecurity a major concern.

One indicator of the food and nutritional status of the population is the food poverty headcount[2]. Using this measure, it appears that food poverty in Zambia is not only higher than overall poverty, but has declined much more slowly over the years. While overall poverty fell by 8.8 percent between 1996 and 2006, overall food poverty only fell by 6.3 percent, from 71.6 percent in 1996 to 65.3 percent in 2006.

Rural areas tend to be more deprived. As the major beneficiaries of food subsidies, urban dwellers saw food poverty decrease by 7.7 percent between 1996 and 2006, though it was still high at 44.6 percent in 2006. In rural areas, food

TABLE 4.3 **Food and nutrition key performance indicators, 2005-2009**

Indicator	2005 baseline	2006 actual	2007 actual	2008 actual	2009 target	actual
target actual						
% of children under five stunted	47.0	54.2	-	45.4	39.0	49.7
% of children under five underweight	23.0	19.7	12.6	14.6	15.0	18.5
Prevalence of vitamin A deficiency among children under 5	54.0	54.0	65.7	-	46.0	-
Prevalence of iron deficiency	52.0	50	50	-	44.0	-

Sources: Ministry of Finance and National Planning 2009 and 2010.

[2] While defining poverty usually involves comparing income to the income poverty line, a measure of food poverty compares food consumption to the food poverty line. Hence, households consuming less food than required by the food poverty line can be considered poor in a nutritional sense.

TABLE 4.4

Livestock production, 2006-2009

Year	2006	2007	2008	2009
Cattle	2,799,965	2,457,563	2,315,327	3,038,000
Sheep	117,930	101,191	485,033	466,506
Goats	1,762,461	956,304	746,143	758,501
Pigs	398,637	538,393	704,832	711,707

Source: Ministry of Agriculture and Cooperatives.

poverty remains much higher. It dropped by only 6.4 percent, from 82.9 percent in 1996 to 76.5 percent in 2006.

High food poverty implies that some substitution in food consumption, often involving cheaper alternatives such as wild fruits and vegetables, may be taking place, especially in rural areas. Traditionally, food production in rural areas is the responsibility of women and children, thus food substitution increases their burden in gathering food. The effects of food poverty can be gleaned from the changes in nutritional status indicated in Table 4.3.

According to data in Annex 18, Zambia has recorded consistent improvements in national food security. With the exception of the 2005-2006 agricultural season, when the country experienced a food deficit, other years have witnessed consistent food surpluses. But changes in nutritional status over the same period, as reflected in Table 4.3, indicate a mixed picture. The level of stunting, which reflects long-term deprivation, declined from 47 percent in 2005 to 45 percent in 2008, before rising again to 49.7 percent in 2009. Stunting levels are particularly high in rural areas, a reflection of the relatively poorer living conditions in these areas.

The presence of underweight children reflects short-term conditions. From a baseline of 23 percent in 2005, the Zambia Demographic and Health Survey estimated the underweight level in 2007 to be 14.6 percent, while figures from the National Nutrition Surveillance Survey (Ministry of Health 2009) put the 2009 value at 18.5 percent. As with stunting, the change in the portion of underweight children has exhibited fluctuations. This suggests that food access, rather than its availability, may be a driver of nutritional status, especially for rural areas.

Indicators of vitamin A and iron deficiency are relatively consistent. Estimated at 54 percent in 2005, the extent of vitamin A deficiency remained static in 2006, although it rose to 66 percent in 2008. The prevalence of iron deficiency was 52 percent in 2005, and declined to 50 percent for both 2006 and 2008.

In general, while Zambia has improved crop production and food security at the national level, better nutritional status at the household level has lagged behind. Achieving and sustaining improved nutritional status will require deliberate policies that empower poor households to increase their purchasing.

Crop production

From the time market-based reforms were implemented, there have been marked changes in crop patterns. Maize is the most important staple food, and the Government has heavily supported its production over the years. It is now the most widespread crop. After liberalization, from the 1990s, data started indicating diversification from maize, particularly in areas with less suitable agronomic conditions. Increasingly, maize was replaced by small grains and tubers (sorghum, millet, cassava and sweet potatoes), which are more tolerant of droughts and grow better in acidic soils.

The Luapula and Northern provinces saw notable declines in area under maize cultivation. For both provinces, the area under cassava cultivation increased by more than 100 percent. All other crops showed a general increase in area and production apart from mixed beans. In North Western Province, the area under maize cultivation steadily decreased, and production also dropped. There was a general decline in the production of all other crops apart from sorghum and sweet potatoes.

In Central Province, overall production remained stable while maize production decreased. It appeared that the decrease in maize production was matched by increases in other

crops. In Eastern Province, the amount of area devoted to maize production stayed the same, but production levels dropped.

In Southern Province, maize production and area under cotton production increased between 1997 and 1998 by 180 percent and 400 percent, respectively. The area under cultivation for groundnuts also increased, while production of millet and sorghum declined. Western Province witnessed an increase in the area under maize cultivation, apart from a decline from 1997 to 1998.

While there was a general drop-off in the area under maize cultivation, provinces along rail lines and near urban consumption centres (such as Copperbelt and Lusaka) witnessed an increase. Liberalization of the market gave incentives to low-value, high-bulk crops near consumption centres.

Livestock and fisheries development

The development of a separate Ministry of Fisheries and Livestock Development is a positive initiative for improving the sector.

The frequent outbreak of animal diseases is partly to blame for the poor performance of the livestock sector. The outbreaks have been especially serious in Southern Province, where the cattle population, estimated at 1,797,697 in 1996, fell to a low of 742,697 in 1998, before rising slightly to 797,636 in 1999 (Ministry of Agriculture, Food and Fisheries 1999/2000). The situation appears to reflect national trends, which show a reduction in cattle numbers during the 1990s. Recently, as shown in Table 4.4, there was a continuous decline in the populations of cattle and goats, except for 2009, while the numbers of sheep and pigs rose.

To stem the loss of livestock, control measures have included vaccination campaigns; the immunization of calves against East Coast fever; livestock movement controls, mainly in Southern Province; and the construction of cordon lines.

A cattle-restocking exercise saw the distribution of 1,037 animals to beneficiaries in Southern Province, while 252 heifers were granted to 42 farmer groups in Central Province as part of the 2007 Cattle Restocking Programme. No restocking was done in 2008, as the funds allocated for this programme were not released. Interviews with ministry staff at headquarters and in districts, however, suggested that the cattle restocking exercise did not perform well. Resources were inadequate, extension services were poor, and farmers' perceptions that the animals belonged to the Government negatively impacted upkeep.

An estimated 300,000 rural households earn part of their income from fishery, contributing to about three percent of GDP. The main sources of fish are capture fisheries and aquaculture (Table 4.5). Abundant water resources in terms of lakes, rivers and swamps provide great potential for the development of fisheries, but this has yet to be realized. Performance of the fishery sub-sector is also constrained by a lack of improved fishing technologies, poor access to credit, poor storage facilities, poor processing, post-harvest losses and transportation constraints.

The sub-sector showed remarkable recovery between 2006 and 2008. Production in capture fisheries increased by 20 percent from 65,927 metric tonnes in 2006 to 79,403 metric tonnes in 2008. Kapenta (small fish) production grew by 37 percent from 6,251 metric tonnes in 2006 to 8,554 metric tonnes in 2009. This growth resulted from the promotion of community-based resource management, as well as intensified patrols in fishery areas.

The Farmers Input Support Programme

Although the Government has adopted an overriding market-based policy approach to agriculture, small-scale farmers' access to credit

TABLE 4.5 **Fish production trends, 2005-2009**

Year	2005	2006	2007	2008	2009
Capture fisheries	65,927	60,236	73,542	79,403	84,716
Kapenta	6,251	7,659	9,476	7,860	8,554
Aquaculture	5,125	5,210	5,876	5,640	8,127
Total	77,303	73,105	88,894	92,903	101,397

Source: Ministry of Agriculture and Cooperatives.

Improving targeting of eligible farmers, and implementing and monitoring a graduation system would improve effectiveness of the Farmers Input Support Programme.

has been constrained and their productivity limited. This prompted the Government to introduce the Farmer Input Support Programme. During the first seven years of implementation, small-scale farmers' access to agricultural inputs (such as fertilizers and improved maize seeds) rose. The Fertilizer Support Programme managed to distribute 422,000 metric tonnes of fertilizer valued at ZMK 1,361.1 billion and covering 1,505,000 hectares. Annually, the programme supplied an average of 60,000 metric tonnes of fertilizer covering about 150,000 small-scale farmers (each with a 1 hectare input pack for maize).

The efficiency and effectiveness of the Farmer Input Support Programme has been compromised by inconsistencies in implementation, especially with regards to subsidy levels and farmer graduation. The programme was designed to offer a subsidy that would gradually decrease from 50 percent in the first year to 25 percent in the second year to zero in the third year. Each beneficiary was expected to contribute 50 percent of total costs of inputs in the first year, 75 percent in the second year and full costs in the third year. A review of the programme (Ministry of Agriculture and Cooperatives 2009) showed that this has not happened, and that subsidy levels have instead steadily increased from 50 percent to 60 percent in 2007, then to 85 percent in 2008, before falling to 75 percent in 2009.

Due to underdeveloped organizational structures and leadership at district and local levels, there are reports of inaccurate targeting and selection of programme beneficiaries. In some cases, smallholder farmers who are not eligible for subsidies have benefited from the programme. It has not been easy to measure or establish impacts on household and national food security, mainly due to weak performance monitoring mechanisms.

The effect of the programme on agricultural productivity and food security has been compromised by poor fertilizer practices. For instance, the 2004 Central Statistical Office/ Ministry of Agriculture and Cooperatives crop forecast data estimated an average maize yield of two metric tonnes per hectare, but only one metric tonne per hectare was the expected yield among small-scale farmers who used subsidized fertilizers. The prioritization of fertilizer subsidies is clearly misplaced. Impact assessments have consistently shown that increased production has not been on account of increased productivity, but rather increased land under cultivation (Civil Society for Poverty Reduction 2005, Minde et al. 2008, and Ministry of Agriculture and Cooperatives 2009). The main reasons for low maize yields have been poor agronomic practices like delayed planting, poor and untimely fertilizer application and weed infestation, among others. Clearly, farmers would benefit much from interventions to introduce more productive methods.

Generally, the Farmer Input Support Programme's lack of effectiveness can be attributed to leakages and poor targeting as well as its skewed support towards one crop—maize. Although maize is important as the national staple food, overemphasis on it is distorting funding to the entire sector, encouraging inefficiencies and undermining the chances for crop diversification.

Market arrangements

Market-oriented reforms introduced in the 1990s emphasized the role of the private sector in the delivery of agricultural inputs, crop purchasing and provision of credit. The results were mixed. The private sector was not more effective than the public sector at performing these functions because infrastructural constraints and market imperfections prevailed. Small-scale farmers had limited access to input supplies and markets. Some hindrances such as a lack of information on prices are slowly being overcome as mobile phones become more prevalent, helping farmers even in remote places. An adverse impact on marketing for small-scale farmers, however, came with the 2010 imposition of a local tax on the movement of maize from surplus to deficit areas

where prices are higher. This emphasizes the need to ensure that policies at various levels are well coordinated.

Given the private sector's inability to effectively purchase peasant agricultural surpluses, the Government passed legislation to formally reintroduce a system of cooperatives. Performance there has also been lower than expected due to persisting structural difficulties. Most cooperatives are agriculture-oriented principally because they want to benefit from subsidized inputs. Among the key challenges are to provide services that can assist small-scale farmers in developing capabilities to meet the contractual requirements of key market players; access to affordable credit given high interest rates; and access to appropriate transport facilities.

Agricultural extension services

Although the provision of extension services as a whole has fallen off, those for animal husbandry have been particularly hard hit. In the light of poor funding and other limitations, providing comprehensive extension services is virtually impossible. The Ministry of Livestock and Fisheries Development has recognized the problem and in some cases pursued opportunities for service provision. Where NGOs offer extension services, mutually beneficiary arrangements have been forged with Government departments. To this end, and in order to avoid creation of parallel services, the Ministry has, for example, entered into a memorandum of understanding with out-grower agencies providing services, under which the agencies share the costs of training and staff remuneration with the Ministry.

Other partnerships for agricultural development have focused on demonstrating proven technologies; upgrading the technical skills of extension staff through training and backstopping in communication, and diagnostic and participatory methods; and disseminating improved farming methods through electronic and print media, and women's and youth groups. More intensive in-service refresher courses help improve the skills of district staff in management, communication and diagnostics; the recruitment of staff to fill vacant positions; the implementation of the Zambia Participatory Extension System; and logistical support to field services.

Cross-cutting Issues

Governance

Decentralized governance systems are widely recognized as supporting effective service delivery. The agriculture sector in Zambia, like education and health, has a fairly well developed local governance structure. The lack of parallel structures for complementary sectors, such as under the ministries of lands, and works and supply, poses coordination challenges, as does the recent separation of the Ministry of Agriculture and Cooperatives and the Ministry of Livestock and Fisheries Development. Expedited implementation of the delayed decentralization policy would resolve some of these challenges.

Gender

Gender manifests in various ways in the agriculture sector. Despite the demonstrated positive link between women's participation in agriculture and food security, extension services are male-oriented. More women have become organized into groups for easier access to services.

TABLE 4.6

Poverty status of households headed by men and women by percent, 2006

Gender	Total poor	Extremely poor	Non-poor	Population
Male	63	49	34	9,395,704
Female	70	57	29	2,289,327
Zambia	64	51	32	11,685,031

Source: Central Statistical Office 2006 Living Conditions Monitoring Survey.

But since the recognition of the need for inclusive gender interventions unfortunately coincided with the general decline in the delivery of services, not much has been done to reorient agriculture service delivery to meet women's needs.

Women farmers have limited access to means of production, which facilitates their confinement to subsistence agriculture. Table 4.6 shows that female-headed households continue to experience the highest levels of poverty.

HIV and AIDS

The impact of HIV and AIDS on agriculture is strongly felt at the household level, where it manifests through loss of productive labour. Limitations on labour-intensive activities such as the application of fertilizer, planting and weeding are some of the factors most affected by low productivity. Declines in off-farm income (remittances, sales) deepen rural deprivation. Proposed programmes to make HIV and AIDS drugs available to all people that need treatment could be challenging to deliver in rural areas, but could bring about some much-needed relief in the labour problems in agriculture.

The epidemic has disproportionately affected women, who end up assuming multiple roles in ensuring food security for their households and providing home-based care for household members living with HIV and AIDS. HIV has also significantly curtailed extension work. Chronic illness and death of extension staff reduces contact ratios with farmers, resulting in low-quality services.

By depleting the quantity and quality of agricultural labour, and destabilizing productivity and income, HIV and AIDS exert a deleterious effect on national food security. The direct and indirect costs undercut the viability of households, especially through the diversion of resources away from investments in health and education, and the selling of productive equipment and capital assets.

Disability

Due to marginalization arising from misconceptions and lack of awareness of human rights, people with disabilities remain excluded from access to agricultural services. Recently, increasing awareness and capacity building for the disability movement has resulted in the formation of a number of groups for people with disabilities. But given their poor status, many still cannot access services unless they are specifically targeted. With NGO assistance, some groups have become involved in activities such as beekeeping, and chicken and pig rearing, with some improvements in their standard of living. Sustainability remains an issue.

Climate change and the environment

The impact of climate change is more visible and disconcerting in the agriculture sector than elsewhere. Zambia's rainfall patterns show increased variability, and serious droughts and flooding have more frequently occurred. Although attributing these to climate change may be difficult, the drive for increased food production, if not handled properly, could at best fail or at worst make the situation deteriorate further. Lessons from Zambia's past suggest that the subsidized growing of maize in less suitable areas has contributed to soil degradation. In general, the clearing of land adds to soil erosion and degradation and the loss of biodiversity, while the application of chemicals and generation of agricultural waste pollutes the environment and water resources.

The imperative for updated extension services for farmers is underscored by the threats of climate change. Without these services, farmers are not adopting conservation practices that may influence the long-term sustainability of farming. The tendency to increase the amount of planted area rather than intensively using fertilizer poses a serious threat to forests and soil conservation. The longer high rates of poverty persist, the more difficult it will be for the country to respond to these and other climate-change–related issues.

Conclusions and Recommendations

The liberalization of agriculture was part of the overall government policy of market-led production of goods and services. Poor rural infrastructure and inappropriate government involvement in the market has limited effectiveness, however. The performance of small-scale farmers has been especially impacted, given their limited access to services, but performance of the sector as a whole has been disappointing.

Reversing course is critical, since creating better jobs and livelihoods in agriculture is a must for human development in Zambia.

The establishment of a dedicated ministry to address livestock issues may not be as promising as it appears, as the process has not only been marred by administrative constraints, but has also introduced inefficiency by making it difficult to share limited resources and coordinate activities, especially at the district level. This move can be reviewed in light of the new decentralization policy.

Achieving effective service delivery at the local level will require an enabling decentralized structure. Relatively better-developed decentralized agricultural operations could yield lessons for the implementation of the new devolution policy and creation of complementary structures in local authorities. The establishment of the Ministry of Livestock and Fisheries Development should be revisited, taking into account the operational difficulties of separating the two ministries, which need to be resolved. Further, improving the livestock and fisheries sectors will require revamping the requisite extension services, and greater international cooperation around annual fish bans.

Examination of budget allocation patterns unveils a tilt towards areas such as the Fertilizer Support Programme and the Food Reserve Agency, at the expense of others, such as irrigation, that may be more empowering to farmers. Reorientation of this allocation pattern is crucial in attaining improvements in service delivery and sector performance.

Available evidence indicates that crop diversification away from maize was discernible prior to the reintroduction of the Fertilizer Support Programme. This shift in crop patterns, however, has been reversed in recent years as indicated by recorded increases in land under maize cultivation. The increase stems from the Food Reserve Agency and Fertilizer Support Programme. Lessons from the past have shown that this direction is not sustainable, and also does not represent an optimal use of scarce resources.

Although there have been major problems with the provision of extension services, given the decline in resources, more could have been achieved with better collaboration between the Government and NGO actors involved in offering them. Past practices of concentrating on crops at the expense of livestock and fisheries extension should be avoided, and budgetary allocations refocused to improve service delivery in a less biased way. Irrigation development and rural road infrastructure benefit all types of farmers, for example. They would facilitate sustained agricultural development and promote better conditions for small-scale farmers. Changing the Farmer Input Support Programme to the planned Voucher Based Inputs Supply System could improve beneficiary farmers' purchasing power and minimize transaction costs.

Finally, while production-targeted programmes could achieve desired agricultural output levels, marketing outputs presents unique challenges. The constraints are especially pronounced for small-scale farmers. Resolving market problems will require capacity-building initiatives for both individual members and the cooperatives.

Livestock and fisheries sub-sector has great potential to contribute significantly to agriculture

Photographs: UNDP Zambia

Chapter 5

Education

Education is essential to attaining higher levels of human development. To be productive, human beings need to cultivate skills and knowledge from an early age. They are best supported by the collective effort of society in efficiently and effectively delivering education services. Service providers play the critical role of organizing, managing and motivating families to educate their children. In view of externalities and time lags between paying for the services and obtaining the benefits, quality assurance is critical.

In Zambia, free primary schooling is the norm. Successes in education include growing enrolment in recent years for various age, geographic and income groups, as well as improved gender parity. The challenges include inaccessible and unaffordable services for many beyond primary education, such as parent-teacher association fees, and huge shortfalls in quality at all levels. Zambia's experience in education provides an example of services that are working for poor people, but going to scale remains difficult, particularly in terms of skilled labour requirements.

Service Delivery Framework

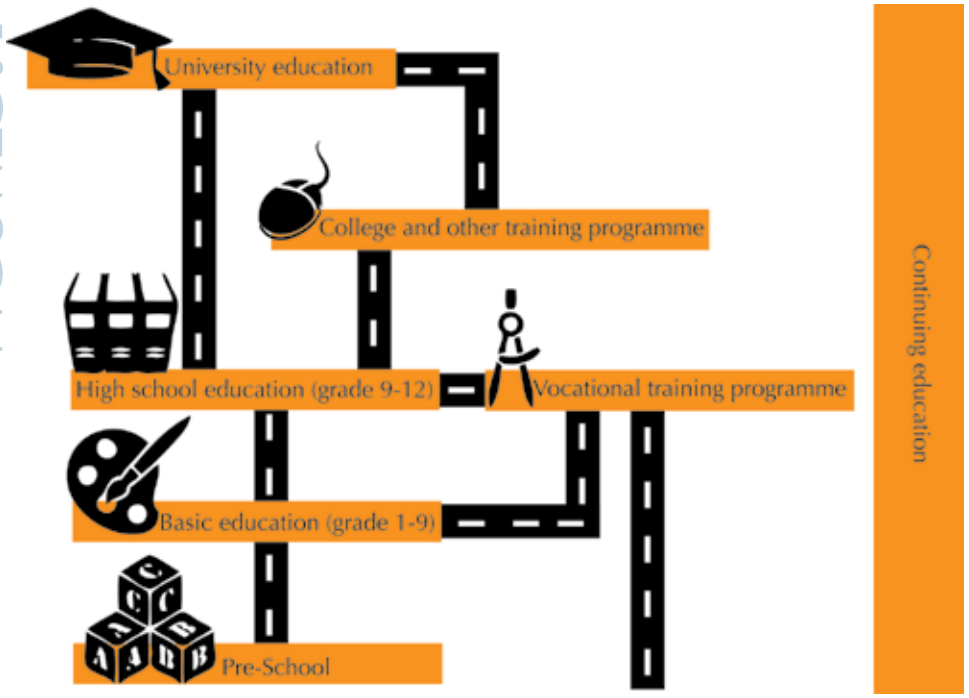
Zambia's education sector comprises pre-schools, basic schools, high schools, teacher training, technical education, entrepreneurial and vocational training, and universities (see Figure 5.1).

In terms of regulation and policy, the Ministry of Education is responsible for pre-school, basic education, high schools and teacher training, while entrepreneurial and vocational training falls under the Ministry of Science and Technology. Pre-schools are the responsibility of local governments. The Ministry of Education is responsible for three public universities in Lusaka, Central and Copperbelt provinces that are relatively autonomous in operational terms. A number of other ministries own institutions of higher education in health, agriculture, public administration, defence and the environment.

Most of the institutions at pre-school level are privately owned. The role of the private sector has grown over the years, and it now owns a good number of both pre-schools, and primary and secondary schools. It is becoming increasingly active in entrepreneurial and vocational training and university education. A number of NGOs have become active in the sector as well, at both community and national levels. They are engaged in a range of activities, from running community schools to advocacy to the provision of education grants. (Box 5.1).

Education structure in Zambia

FIGURE 5.1



Source: Ministry of Education.

BOX 5.1

Non-state actors and public-private partnerships in education

Private schools are supported and managed by private individuals or groups. Parents or guardians pay school fees that are mostly beyond reach for the poor. Church schools are entirely supported by religious groups or church agencies. Grant-aided schools managed by churches are accessible to the poor. Community schools are founded and run by communities. They may receive school grants as well and/or be supported by churches, NGOs or international donors. Many have had a crucial role to play in increasing enrolment, especially for orphans and vulnerable children.

Other arrangements outside the regular state system are academic production units and open schools, which are teacher initiatives found in many secondary and upper basic schools. Although not officially sanctioned, these arrangements have been tolerated because they satisfy some unmet demands in communities, in addition to supplementing teachers' incomes.

Policy and Institutional Framework

The adequacy of the legal and institutional framework for education should be judged by its ability to produce high-quality learning that is equitably available. Like most other institutional frameworks in Zambia, the one for education is founded more on the basic needs approach than on the human rights approach to service delivery. Rights-based arguments are founded on the idea of a set of universal and indivisible rights that all individuals hold, and that are or should be backed by legal entitlements.

The success of the policy of free primary education could have been enhanced by legal backing of entitlements.

Though Zambia has agreed to implement its educational programme within the framework of international human rights law, the Education For All platform and the MDGs, free and compulsory education is not a constitutional right. Zambia was one of the States that formally acknowledged its inability to ensure free primary education when it ratified the International Covenant on Economic, Social and Cultural Rights in 1984. It affirmed in 2002 that, "there is no legislation that guarantees the right to education." Instead, its policy of cost-sharing required parents "to contribute to the education cost of their children in the form of user fees." In 2002, an exception to this rule was made when the Government committed itself to

the provision of free primary education. School fees for grades one to seven were abolished, along with obligatory school uniforms.

The lack of local government involvement is a missing link in the accountability framework.

In line with the National Policy on Decentralization, the education sector is currently undergoing reforms aimed at devolving responsibilities to local governments. In general, the Government has expanded its capacity to enhance both service provider and client participation in the education sector, though much remains to be done. Parent-teacher associations have opened space for client voices. The increased participation of NGOs and the empowerment of frontline delivery systems through decentralization, deconcentration and devolution of power over the years have generated new relationships of accountability between citizens, politicians, policy makers and service providers.

The result has been rising enrolment in government and community schools, helped by increased infrastructure and availability of teachers. Services are falling short, however, because devolution in current institutional arrangements has not gone far enough to improve accountability at the local level. The policy of free primary education may fail to improve the delivery of services as long as the accountability framework remains weak.

The launch of the National Decentralization Policy in 2004 and the subsequent approval of the Decentralization Implementation Plan in 2009 mean that all central organs are now working towards building capacities for devolving power to local councils. The Education Bill was finalized in 2008 and has been approved by Parliament.

Budget Performance

Although the total amount of resources allocated to the education sector from both internal and external sources has increased in absolute terms since 1998 (World Bank 2006), as a percent of GDP, it has been low, ranging between 2 percent and 2.5 percent. Government expenditures on education in three comparator countries, Kenya, Malawi and Uganda, were on average approximately 5 percent of GDP (Ministry of Education 2007). The Education Sector Public Expenditure Review of 2006 concluded that Zambia has a low-cost, low-quality education system, especially at the basic school level (World Bank 2006, pp. 18-19). Over the same period, some comparator countries were spending as much as 30 percent of domestic revenues on education, compared to only 12 percent in Zambia.

Zambia's relative expenditure on education was more than 50 percent below that of comparator countries, exemplifying a preference for quantity over quality.

Recently, Zambia has recognized that its low spending rate is a major drawback. Efforts have been made to reverse the trend, even in the midst of the recent global financial and economic crises. Spending in the sector was budgeted to increase to 4.4 percent of GDP in 2009. Spending considerably more in the medium term is still a major challenge.

Trends in Capital Investment

Zambia's overall economic stagnation during the 1990s resulted in a lack of schools and classrooms, an important factor explaining the low enrolment rates in that decade. The limited number of schools resulted in large average distances for pupils to travel, whereas a lack of classrooms forced many schools to reject new pupils. In 1999, there were approximately 4,300 primary and basic schools in Zambia, 25 percent of which were mostly pole-and-mud structures (Ministry of Education 2004, p. 30-31).

The Government responded to this challenge by increasing funding and developing two investment plans, the Basic Education Sub-sector Investment Plan (1999-2002) and the Ministry of Education Strategic Plan (2003-2007), which more than doubled the number of schools by 2008, and brought about improvements in school water supply and sanitation facilities. In general, however, investments could not keep pace with the exponential growth in enrolment. The availability of teacher housing is still a major drawback to teacher morale and retention in many places.

Sector Performance

Enrolment and transition from basic through tertiary levels

The decline in copper prices in the eighties was accompanied by a corresponding decrease in income and government resources, with adverse effects on the capacity of the education sector to keep up with demand from a rising population. Although there have been some significant improvements since the mid-1990s, educational attainment in Zambia remains low and inequitable. The median years of completed schooling for the adult population is only six, meaning many Zambians have not achieved the required seven years of primary education (Central Statistical Office 2009).

Enrolment has improved but educational attainments remain low.

Since 1995, investments in new school buildings, classrooms and teachers enabled schools to admit more pupils at the basic level, with mixed results in terms of quantity and quality improvements. This has translated into remarkable changes in a number of quantity indicators such as enrolment and transition through primary schools. Improvements in the quality of education and transition to higher levels have lagged too far behind, however, to address critical shortages in the availability of skills to scale up services.

Access to schools

Between 1999 and 2006, all provinces witnessed some increase in the number of schools, with the largest changes in Lusaka, Central and Eastern provinces. In line with the Education for All reforms, the greatest increase was in schools offering grades 1 to 9, followed by those offering grades 1 to 7, and grades 10 to 12.

Fifty percent of pupils still travel one to four kilometres to school.

Community schools were the biggest contributors to the increased number of schools. As a result, Zambia was able to maintain the average distance[1] traveled to school within the recommended radius of five kilometres for nearly 90 percent of pupils. Dramatic increases in enrolment resulted. The remaining 10 percent of students outside the five-kilometre radius may prove harder to reach, making universal basic education difficult to attain. Other hindrances to access include fees, disabilities, and language and cultural barriers. (Central Statistical Office et al. 2009)

Demand for schools

The introduction of education fees in the 1990s greatly reduced the demand for education, especially for middle- and lower-income groups. After the introduction

Demand increased faster than availability of services.

TABLE 5.1

Summary of efficiency indicators in schools

Indicator	2002			2008		
	Male	Female	Total	Male	Female	Total
Transition rate (grades 7-8)	53.5	56.1	54.7	54.2	57.2	55.6
Transition rate (grades 9-10)	48.8	45.7	47.4	38.5	37.8	38.2
Completion rate (grade 9)	38.8	31.9	35.3	55.7	46.8	51.2
Completion rate (grades 1-12)	17.4	11.6	14.4	25.0	18.9	21.9
Dropout rate (grades 1-9)	3.4	3.9	3.6	1.7	2.7	2.2
Dropout rate (grades 10-12)	1.5	2.3	1.8	0.6	1.7	1.1
Repetition rate (grades 10-12)	0.6	1.0	0.8	1.6	1.4	1.5

Sources: Ministry of Education 2002 and 2008.

1The longer the distance pupils travel to school, the lower the learning achievements (Examinations Council of Zambia 2009).

of free primary education, many school applicants were turned away because of a lack of sufficient school places (Mwansa et al. 2004). Even though substantial investments were made in schools under the Basic Education Sub-sector Investment Plan, many did not have enough classrooms, teachers and desks to accommodate increased enrolment. Other schools limited the number of pupils because of the misinterpretation of policy guidelines, such as for the New Breakthrough to Literacy Programme, a primary reading programme that prescribed a maximum of 40 pupils in one classroom.

Some of these bottlenecks have been overcome by reducing quality. For example, average class size remains above the recommended threshold of 40 pupils per teacher, and increased demand has been met by using double and even triple shifts at the lower grades, thereby reducing pupil-teacher contact hours.

The primary gross enrolment rate and primary completion rate, which were 75 percent and 63 percent, respectively, in 1999, rose to 130 percent and 91 percent, respectively, in 2007. While gender disparities have narrowed, gaps between rural and urban areas are quite large (Bartholomew 2009:4). In general, completion rates at both primary and secondary schools are still very low. Transition rates for grades 7 and 8 have stagnated at around 55 percent, and declined for grades 9 and 10 (Table 5.1).

Affordability of education services

The availability of schools closer to homes and the Free Primary Education Policy reduced the cost of education. Studies show that this shift has fostered equity. Among rural schools, support for schooling represented 66 percent of household education expenditures for the lowest wealth deciles, and 19 percent for the top wealth deciles. It essentially created the possibility for the lowest wealth deciles to send their children to school.

Free primary education, however, does not mean that primary education is costless and fully equitable. Examination fees in grade seven are still payable, and failure to pay accounts for the higher than average dropout rate at this level. Some of the highest dropout rates occurred in 2002 in Southern Province at 29 percent and Copperbelt Province at 19 percent, compared to a national average of 17 percent. Free primary education reduced the national dropout rate at grade 7 to 11 percent in 2007, but some provinces have witnessed little or no change. Dropout rates remain high in the provinces of Central at 13.9 percent, Eastern at 14.5 percent, Lusaka at 16.6 percent and Western at 11.6 percent. North Western Province experienced a massive increase from 1.4 percent in 2002 to 8.4 percent in 2007 (Central Statistical Office and ORC Macro 2003, Central Statistical Office et al. 2009). The Ministry of Education announced its intention

BOX 5.2

Free primary education—emerging issues

The interpretation of the free primary education policy by parents and politicians often seems misguided and sometimes even confusing. Some politicians apply the policy to grades eight and nine, and apply political pressure to stop penalization of students who fail to pay. Cost-sharing implies that parent-teacher association fees can still be charged even at primary school level.

The allocation of school infrastructure grants to schools is premised on the assumption that some parent-teacher association fees or other forms of revenue generation will be forthcoming. Communities are required to meet at least 25 percent of the cost of infrastructure rehabilitation and construction. But the introduction of free primary education has changed the culture, and many parents agree to contribute but fail to do so. The extent to which the associations can enforce the payment of fees varies depending on the area and application of political pressure.

In some poor areas, schools fail to meet the 25 percent requirement and face removal from the school infrastructure programme. In others, the process is extremely slow, and projects take a long time to complete. Traditional chiefs at times use their positions to enforce community participation. The end result is the distribution of infrastructure based on ability to pay, hence entrenchment of some regional disparities.

to abolish examination fees in 2010 (Ministry of Education 2007, p. 40), although this policy has yet to be implemented.

The sustainability of the free primary education policy

The sustainability of free primary education remains questionable (Box 5.2). Schools are still faced with many costs, such as for purchasing learning materials and maintenance. In urban areas, schools confront additional expenses for water and electricity. Further, education grants have decreased over time and become more erratic as the number of schools increased. In recent years, it has taken as long as six months for the grants to reach the schools. High schools and basic schools with grades eight and nine enjoy some relief, since they can still apply school fees for these grades. This has further pushed up service providers' demand for grade eight and nine classes in places where they do not exist.

As can be seen by the distribution of types of schools, the private sector's contribution over the years has remained minimal and confined to urban areas. NGOs have focused mainly on basic schools in response to the dictates of donors.

Critical Gaps in Service Delivery

Early childhood care and education

Early childhood care and education for poorer communities, especially in urban and peri-urban township areas, can be critical in helping poor children out of the poverty cycle. Pre-school in Zambia includes ages three through six, and is neither free nor compulsory. The most common duration across countries is three years, typically serving ages three to five, or, less frequently, four to six. Zambia is therefore outside the general norm. Provision has been left to local authorities, most of which have neglected it. Its importance has been acknowledged, however; the Ministry of Education was mandated to spearhead coordination of services through a government gazette in 2004.

Less than 10 percent of children have access to early childhood education.

Participation in schools for children aged three to six has remained low over the years. In 2005, only 20 percent of new entrants to primary schools had pre-school education. Zambia is not alone in this. Most Sub-Saharan African and other least-developed countries show low participation levels, often below 10 percent (UNESCO 2005). Predominantly urban provinces had the highest rates of new entrants, with the prevalence of prior early childhood education in Lusaka Province being the highest at 48.5 percent, followed by Copperbelt Province at 35.8 percent. Predominantly rural provinces had the lowest proportions of new entrants, with the worst being Western Province at 5.8 percent, followed by Eastern Province at 9.9 percent.

The continued existence of this gap makes it difficult to provide quality education in later years and to help many poor children out of the poverty cycle. A human rights approach emphasizes that the right to education should start at birth, because this is what optimizes child development, along with systematic and quality family involvement. For some children, especially those born with disabilities and learning difficulties, early interventions are crucial.

Community schools

In many developing countries, community schools fill gaps left by the government. In Zambia, they consistently serve more over-age students than public schools. More than half of community school students are over age 14, while only 28 percent of public school students are over age 14 (Examinations Council of Zambia 2003).

Community schools play the critical role of filling in the gaps left by the public sector. The number of children enrolled in community schools doubled between 2000 and 2006.

In 2000, approximately 120,000 pupils were enrolled in community schools; by 2006, this number had grown to almost 470,000. Between 2000 and 2006, total enrolment in basic schools (grades one to nine) increased from 1.8 million to 3 million. Community schools accounted for 30 percent of this increase (Ministry of Education 2001 and 2007).

Despite playing such a critical role, community schools often use temporary and dilapidated infrastructure, and face considerable difficulties acquiring teachers and teaching materials. Many have received support from both the Government and donors, but the institutional mechanism for sustaining such support remains unclear. Much

of the debate is about who should be supported to run the schools. Some communities would like the Government to take over completely, while some NGOs are opposed to such a move. It remains to be seen whether decentralization can allow such a decision to be made at the local level.

Basic schools

Ensuring that children remain in school long enough to complete the curriculum and acquire basic skills is important, and Zambia has made good progress in its primary school completion rates, from 61 percent in 2002 to 93 percent in 2009. An important determinant of this is the dropout rate, which due to free primary education decreased by 40 percent for grades one to seven between 2000 and 2008. Dropout rates for grade one in Africa in 2006 ranged from as low as 0.9 percent in Cameroon to as high as 31.6 percent in Ghana. Zambia was on the lower end at 5 percent for the same period (UNESCO 2010). Zambia's education system allows automatic promotion irrespective of performance, however, so the lower dropout rate does not mean that education is more efficient.

The regional differences in dropout rates are even more worrying, and are much higher in rural than in urban areas. After the introduction of free primary education, from 2000 to 2005 dramatic reductions in dropout rates were witnessed in several provinces, such as Eastern by 40 percent, Southern by 75 percent, Lusaka by 66 percent and Copperbelt by 77 percent. In areas where distance to school is a crucial factor, dramatic increases in enrolment were followed by dramatic increases in dropouts, notably North Western by 13 percent, Luapula by 1,070 percent, Northern by 341 percent and Western by 89 percent (Central Statistical Office et al. 2009, and Ministry of Education 2005 and 2008). From 2005 to 2008, nearly all provinces experienced some increase in dropout rates, ranging from 5 percent in Eastern to 47 percent in Lusaka. The exceptions were Copperbelt, which fell by 18 percent, and Luapula, which declined by 4 percent.

Post-basic education

The strong emphasis on basic education since 1996 has meant that post-basic education has not received the attention required in terms of expansion, rehabilitation, educational material support or curriculum review. The share of public expenditures allocated to post-basic education fell significantly during the late 1990s, forcing high schools to become increasingly financially autonomous. Much higher fees were imposed, restricting access to high schools for the large majority of households. Though gross enrolment for grades 10 to 11 increased from 13.5 percent in 2002 to 28.7 percent in 2008, efficiency rates declined over the same period. The transition rate from grades 9 to 10 declined from 45.7 percent in 2002 to 37.8 percent in 2008, while the repetition rate in grades 10 to 12 increased from 0.78 percent in 2002 to 1.83 percent in 2006, but declined to 1.5 percent in 2008. This decline may be due to the increased cost of tution and examination fees, rather than the quality of education at lower levels.

The low priority given to post-basic education has depleted the skills of the workforce.

Post-basic educational attainments are low overall, but also highly skewed in favour of males. In 2007, the proportion of the adult population with more than a secondary education averaged 5.2 percent, while that for men was 8.1 percent (Central Statistical Office et al. 2009). Despite efforts to reduce this gap, such as lower entry cut-off points for females and increased accommodation in institutions of higher learning, the long-term effects are that Zambia's post-basic education system is failing to encourage the growth of an educated, middle-class workforce. This has serious implications for the country's service delivery capacity and consequently sustainable human development.

Tertiary education

Although there has been a general increase in enrolment at the tertiary level, access and participation have been highly inequitable. The enrolment level in colleges rose by nearly 50 percent between 2004 and 2005, but stagnated thereafter. The increase could be attributed partly to the self-sponsorship scheme introduced by the colleges, which allowed them to raise additional revenues for expansion. The Government also offered other ways of increasing access and diversifying courses. Private sector participation was encouraged through the conversion of some existing colleges into university colleges, and

has so far led to the creation of a new university in Kabwe, Mulungushi University, along with distance learning programmes.

Gender disparities are much higher at the tertiary level, but some improvement can be observed. For example, in 2005, 25,584 students were in enrolled in tertiary institutions, out of which 11,357 were females, about 44 percent. This far exceeds an earlier target of women making up at least 25 percent of students.

Of the total number of students, 12,810 were in teacher training colleges, 3,524 were at Copperbelt University and 9,250 attended the University of Zambia's main campus.

Vocational education and skills training

Skills training increases capacities for improved productivity, economic growth and human development. Presently, 300,000 young people drop out of the education system each year without acquiring the necessary skills for personal advancement or labour market participation. Out of this number, the vocational education and training system is only able to absorb 14,000 annually. Less than 13 percent of the population has access to entrepreneurial and vocational training services, whereas the average for middle-income economies is between 20 and 30 percent.

Each year, 300,000 young people drop out of the education system without acquiring the necessary skills for personal advancement or labour market participation.

The current potential demand for tertiary education, estimated at 1.63 million youths by the Ministry of Science, Technology and Vocational Training, is very high, and far from being satisfied. Higher institutions have a total annual intake of about 5,000 students, about a quarter of whom are mature students. There are two reasons for a mismatch between the numbers applying and the numbers admitted. One is that applicants do not all satisfy an institution's admission criteria; the second is that the institutions do not have the capacity to admit all qualified applicants. Both reasons apply, but the major reason is that admissions capacity in institutions of higher education falls short of the demand. The sustainability of institutions of higher learning is being affected by mounting debts brought about by delayed payments to retired and laid-off staff. In addition, the shortage of professional staff is spurring a continued decline in quality.

The success of the free primary education policy could have been enhanced by adopting more effective local institutions to enhance quality.

Quality of Education Services

Studies show that the quality of education in Zambia is among the lowest in Southern Africa. Though substantial efforts have been made to deliver the required inputs for a well-functioning school system, interventions have been insufficient to enable the quality of services to keep up with the growth in enrolment. Some of the measures implemented included increasing the supply of qualified and motivated teachers, changing the curriculum to provide necessary skills and knowledge, creating effective administration, optimizing instructional time, and increasing the supply of teaching and learning materials. The school system failed to motivate both service providers and clients, however, and provide them with the means to hold the school system accountable.

Free primary education has failed to ensure the quality of education. This outcome could have been avoided by developing effective institutions.

The quality of learning has been compromised. Initially, the massive inflow of pupils caused student-teacher and student-classroom ratios to skyrocket. Pupils did go to school, but they had to sit on the floor in overcrowded classrooms, lacked adequate learning materials and faced limited pupil-teacher contact time as a result of double and triple shifts. Although limited resources were a crucial factor, given more effective institutions, the available resources could have been put to better use. Parent-teacher associations, for example, have remained powerless to influence any of these outcomes. Parents who could afford to influence quality have opted to pay extra tuition for private schools, rather than holding the public school system accountable.

Trends in the number of teachers in basic schools

Critical shortages of teachers haven been experienced in many schools, especially in rural areas. The number of basic education teachers declined quite sharply in the late 1990s,

Zambia has one of the highest pupil-teacher ratios and teacher attrition rates in Africa.

mainly due to the decision to stop recruiting untrained teachers, high attrition under the impact of AIDS, poor pay, and lack of housing, particularly in rural areas. As a result, Zambia has one of the highest primary school pupil-teacher ratios in Africa, and has been above the recommended standard of 35 to 1 for many years. The sharp decline in the ratio in the 1980s, the result of successful teacher training policies, was followed by a steep rise in the 1990s as Zambia, especially the education sector, experienced one of the worst brain drains in the region.

Community schools rely more on untrained teachers, though they have been training their own teachers. The transfer of teachers to public schools has been a source of concern to some communities. Many teachers in community schools have less than grade 12 qualifications; government policy precludes their employment in the Teaching Service.

Classrooms, teaching materials and environments

The rapid growth in enrolment has been supported by the completion of about 900 new classrooms each year at new and existing schools. Despite this remarkable growth, the lack of infrastructure constitutes a major constraint in Zambia; overcrowding in classrooms reduced the effectiveness of learning. The recommended pupil-classroom ratio was revised from 35 to 1 to 40 to 1 during the Fifth National Development Plan period (2005-2009), and all grade levels were on average within this range in 2008.

The use of double sessions helped to keep pupil class ratios closer to the standard, but also reduced the teacher contact time from the recommended 5 hours to about 3.6 hours. Contact times are highest for private and church schools, and lowest in community schools and irregular class types. The book-pupil ratio has improved in both basic and secondary schools, and in all provinces from an average of seven pupils per book in 2005 to about two pupils per book in 2008.

Learning achievements

Successive surveys reveal low achievements in pupil performance in reading in English and mathematics (Figure 5.2). The trend in English was relatively stagnant from about 33.2 percent in 1999 to 34.5 percent in 2006. On the other hand, the trends in mathematics improved from 34.3 percent in 1999 to 38.5 percent in 2006 (Examinations Council of Zambia 2007).

The findings also indicate that few pupils have attained full mastery of skills at the grade five level. This has led the Government to change the language policy, so the language of instruction in grades one and two is the familiar Zambian language of a given area, while the pupils learn English as a second language. The language of instruction from grade three onwards is English, which continues to be taught alongside Zambian languages (ibid.).

Among the factors that explain weak learning achievement is underinvestment over a number of years in the instructional dimension of education (World Bank 2006). To improve this situation, the following recommendations were made: mobilize more inputs of teachers and instructional materials; extend the duration of the teaching day in grades one to four; extend initial literacy in Zambian languages throughout the country; and ensure that only trained teachers work with the lower grades (Examinations Council of Zambia 2001). Only the first recommendation has been carried out.

Alignment of skills to development

There has been a mismatch between the expansion of basic education, development of skills and the demand for labour in the economy. Low-quality education achievements at a basic level produce a labour force difficult to employ, educate and train further. Other issues of concern are the brain drain, the inability of available skills to influence growth and poverty reduction in Zambia, and the slow pace of increase in essential skills.

There is a mismatch between skills training programmes and the development needs of the country.

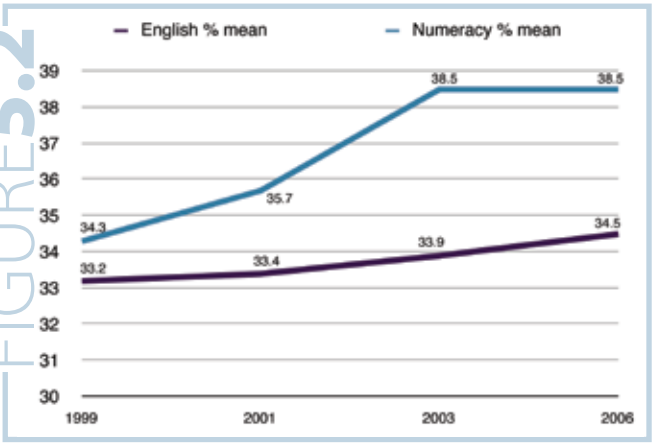
Cross-cutting Issues

Gender

The Basic Education Sub-sector Investment Plan sought to improve the enrolment of girls and vulnerable children with special needs, including by sensitizing parents and introducing measures to prevent dropouts. As early as 1995, the

Mean score trends for English and mathematics, 1999-2006

FIGURE 5.2



Source: Examinations Council of Zambia 2007

Ministry of Education initiated the Programme for the Advancement of Girls' Education in two districts, Lusaka and Chipata. This programme has successfully promoted the access of girls, and by 2002 had extended to all 72 districts and to 1,571 basic schools (Ministry of Education 2004, p. 40). Sensitization campaigns emphasized the importance of girls' education.

Free basic education eased constraints on the number of places in basic schools, which was one of the major causes for the gap between boys and girls. In 1996, the enrolment of boys in primary education was nine percent higher than the enrolment of girls; by 2002, this figure had been reduced to seven percent; in 2005, it was four percent. The latest figures on new entrants confirm that girls are catching up with boys in primary education. Other supportive interventions include bursaries and a pregnancy readmission policy.

Retention, progression and completion rates have improved to a lesser extent than enrolment, however. Recent statistics show that the number of girls receiving bursaries in basic schools declined tremendously from 45,173 in 2007 to 11,566 in 2008, while that of boys more than doubled from 41,836 to 103,489 in the same years (Ministry of Education 2008).

Considerable differences by grade and province remain. In most provinces, gender parity is close to 1 at the lower grades (one to four), but it drops at the higher grades, especially in the provinces of Eastern at 0.62, Luapula at 0.66 and Northern at 0.68. Pregnancies and early marriages are major causes of dropout, despite policy interventions aimed at promoting the retention of girls, such as by allowing girls that fall pregnant to return to school after giving birth.

Recent signs show that gender imbalances could worsen, given the dramatic decline in the number of females receiving bursaries in basic schools, from 45,173 in 2007 to 11,566 in 2008. Males, on the other hand, achieved a 60 percent increase from 41,836 in 2007 to 103,489 in 2008. Disparities are similar but more glaring at higher levels (Ministry of Education 2008).

The Ministry of Community Development and Social Services deliberately focuses on empowering women in skills training, given their central role in providing for their families. In general, female participation in entrepreneurial and vocational training has been on the rise, especially in commercial courses. At the national level, women's enrolment averages 44.7 percent of the total.

Women's enrolment has been very low in programmes for engineering and construction, media and information services, applied and performing arts, paramedical science, and agriculture and horticulture. Female participation in technical courses is currently about six percent. Higher rates are found in business and law, information technology, hospitality and social services. Gender imbalance is a concern for male students in textiles and design, where male participation hovers at only 18 percent. Key factors affecting women's participation include cultural barriers and negative perceptions of female participation in technical and scientific programmes.

Disability

The number of children with special educational needs in basic schools has increased from 23,209 in 2002 to 168,866 in 2008. In high schools however, the number is not only much smaller compared to basic schools, but having witnessed an initial increase from 1,264 in 2002 to a peak of 6,637 in 2006, it declined to 3,732 in 2008, with the drop-off affecting both males and females (Ministry of Education 2008).

Participation of disabled persons in entrepreneurial and vocational training currently stands at three percent of total enrolment. Of these persons, two percent are physically disabled, while the remaining one percent comprises deaf, visually impaired and mentally disabled persons.

The main factors behind such low rates of participation are inaccessible infrastructure, non-availability of teaching and learning materials, and lack of access to assistive devices, transport and other facilities for persons with disabilities. This situation calls for increased sensitization and awareness-raising around their full inclusion.

HIV and AIDS

Zambia's education sector and skills training programmes have been seriously affected by the high attrition rate of teachers and students due to HIV and AIDS and resultant illnesses. This has led to the loss of productivity, skills and knowledge, and human capital (Ministry of Education 2006). Attendance rates for learners have declined as a result of illnesses and the premature deaths of parents and guardians, which leave many of them without support, and force older siblings to assume the role of family caregiver.

While deaths have declined for primary school teachers since 2004, they have remained at the same level for secondary school teachers over the same period. Consequently, it is important that skills training continue to fully incorporate HIV prevention for both students and staff. Steps to reduce attrition rates of teachers include increased teacher supply from the teacher training colleges and sensitization of teachers on HIV. Strategies to mitigate the impact encompass mainstreaming HIV and AIDS issues in the curriculum, dissemination of information to both learners and teachers, workplace programmes, advocacy and ART.

Governance

Basic education services are earmarked for devolution to local governments. Although the policy change was announced in 2004 and the education sector is ready for devolution, Zambia has had difficulty arriving at a consensus on the financing of the Decentralization Implementation Programme and the sequencing of events.

The education sector is well placed to take the lead in sectoral devolution.

So far, the experience of Zambia has been one of deconcentration of decision-making power within the Ministry of Education, rather than devolution to local authorities. The gains from this have been modest. Zambia has found that the establishment of education boards has relieved the Ministry of Education of much of the burden of day-to-day business; fostered a greater degree of democracy in the management and administration of the system; and allowed greater responsiveness to local needs, even though there have been numerous challenges. Even without a conducive legal framework, this policy, together with the recognition of NGO and community participation, has created space for the growth of community schools, leading to the high growth in enrolment.

Studies have found that these institutional arrangements cannot be models for scaling up services, however. Community schools do not always operate along the principles of Education for All, since communities are chosen based on their ability to make some sort of contribution. They are further not exempt from the effects of free-riding and the waning spirit of volunteerism. The availability of grants at school level remains a challenge for both government and community schools, which continue to rely to a large extent on external financing. The planned devolution to local authorities offers better choices for the people and should be accelerated.

Education, environment and climate change

Environmental issues are mainstreamed in the skills training programmes offered by the Ministry of Education. Colleges and community centres under the Ministry of Community Development and Social Services offer community self-help initiatives that refer directly to livelihood activities such as agriculture and share knowledge on environmental issues.

Environmental measures are included in training manuals, such as those for carpentry programmes, which present elements of caring for trees. Schools have integrated environmental restoration in their curricula, touching issues such as recycling and other forms of waste management. In view of climate change, the time has come to take these efforts to a whole new level.

Impact of the recent financial and economic crises

A general effort was made to protect the social sectors from the adverse effects of the financial and economic crises. For example, the total budget

as a percent of GDP declined from 30 percent in 2005 to 24 percent in 2009, but education's share of the total budget increased from 12 percent in 2005 to 17 percent in 2009. Despite this, the crises still meant that some critical expenditures, such as for curriculum development, infrastructure and implementation of the entrepreneurial and vocational training policy, experienced substantial cuts. The crises also contributed to reversing some gains in equity. While there was a general growth in enrolment, for instance, the participation of vulnerable groups declined between 2007 and 2008; orphans in grades 10 to 12 by 7 percent; and children with special educational needs in basic schools by 1 percent; and in grades 10 to 12 by 29 percent. The crises provided a justification for slowing down the implementation of the Decentralization Investment Plan, due to limited funds for capacity building.

Conclusions and Recommendations

The delivery of education services, though not adequate, has seen some improvements since 1990. The last 10 years have witnessed notable achievements in enrolment and much greater equity for girls. These accomplishments can be attributed to the removal of user fees for basic education, and the introduction of education boards for districts, high schools and teacher training colleges. In addition, improved governance in the delivery process, such as the decentralization undertaken within the Ministry of Education, resulted in the deconcentration of decision-making and financial management authority to local administrative levels. More important was the creation of a more conducive environment for the increased participation of the private sector and NGOs.

Though commendable, these developments have not gone far enough in improving the quality of education so that it strongly supports sustainable growth in human development. The devolution of service delivery to local governments remains the most sustainable way of increasing local participation and accountability towards this end, and must be accelerated.

Zambia has weathered the recent financial and economic crises better than most countries, but this has been at the expense of service delivery in general and vulnerable groups in particular, as demonstrated by the continued neglect of pre-school education, the halving of high school attendance for children with special economic needs, and the threefold decline in the number of females receiving bursaries in basic schools in 2008. Sustained investments in school infrastructure and teaching staff remain important requirements for improving both quality and equity. There is also a need to guarantee the rights of children at pre-school level and for persons with disabilities if they are to be protected from future financial crises.

The fragmented institutional framework for skills training needs to be reviewed, and various programmes streamlined and rationalized to increase the efficiency and effectiveness of service delivery beyond post-basic education. In particular, developing leadership skills on climate change issues in various aspects of the economy is critical, because the longer skills development is delayed, the more challenging the issue will become.

Zambia needs to adhere to its target of increasing education spending from the current 2.1 percent of GDP to 4 percent. Part of this increase can be directed towards developing innovative ways to encourage private/public partnerships to address equity considerations across geographic regions and emerging climate change issues.

Chapter 6

Health

Health services are among the core factors determining the level of human development. The promotion of healthy lifestyles, disease prevention, timely and quality treatment, rehabilitation and palliative care are all part of the continuum of health services vital for "long and healthy" lives. Healthy populations are generally more productive and employable. In contrast, widespread ill health can curtail the capacities of affected individuals, households and communities. A vicious cycle of disease, ill health, low productivity, low incomes, poor nutrition, more diseases, etc. occurs, eroding any meaningful chances for positive health outcomes. Universal coverage of an entire population with quality, basic health services has come to be accepted as key to sustainable human development.

The 1998 *Zambia Human Development Report* focused on basic social services. It showed that the provision of, access to and use of health services were inadequate, and had sharply deteriorated. This was particularly true in rural areas, and especially among extremely poor households, women and children under the age of five years. Subsequent human development reports for Zambia have continued to allude to the huge challenges faced by the health sector in accelerating human development, more so given the magnitude of the HIV and AIDS epidemic.

The 2011 report looks at the progress made in key health outcomes over the recent past, and provides an analysis of health service delivery performance as well as the associated policy framework, institutional arrangements, human resources requirements, budgetary performance and cross-cutting issues.

Service Delivery Framework

Policy and legislation

Zambia has a legislative and institutional framework designed to ensure good delivery of health services and the desired coordination of the various levels and actors. The legislation is inadequate, however. For example, 14 laws were enacted more than 50 years ago, and some are irrelevant to current health sector dynamics. Additionally, most new policies and legislation are still in draft form. In 2005, the coordination challenge was exacerbated by the repeal (without replacement) of the

An overarching health policy and legal framework is required to make service delivery more responsive to current health dynamics.

1995 National Health Services Act, which had approved the establishment of health boards.

The lack of an act to provide a framework for the organization of health services has created a situation where the health sector operates in a legislative vacuum. Much activity has gone into developing specific areas of policy without the benefit of a framework to ensure consistency, harmonization, and alignment of all specific health policies and legislation. There is an apparent disconnect between policy formulation and implementation, with relatively weak attention given to the latter. Linked to that is the lack of a framework to monitor and evaluate the impacts of new policies and legislation.

Health regulation

Since the provision of health services has potential dangers, operators in the sector need to be regulated. The separation of service delivery from regulation is a fundamental principle of governance, independent of the ownership of services. Setting standards, inspection of health facilities, and registration of different cadres of health workers are all key requirements for the protection of citizens, in both the public and non-public sectors.

Separating health regulation functions from service delivery is a fundamental principle of governance.

In Zambia, the regulatory function is mainly done by the following statutory bodies: the Pharmaceutical Regulatory Authority, the Food and Drugs Laboratory, the Environmental Health and Epidemiological Trends Unit, the Radiation Protection Board, the Radiology and Medical Devices Control Unit, the Public Health Laboratory, the Health Professions Council of Zambia (formerly the Medical Council of Zambia) and the General Nursing Council.

During the implementation of health reforms in the 1990s and early 2000s, the statutory boards were not included in the health reform agenda. Consequently, they lagged behind in institutional development compared to the institutions they are required to regulate. In addition, low financial, human and logistical resources have made it difficult for them to routinely carry out inspections, verifications and other regulatory functions. The authority of statutory regulatory bodies neither extends to the regulation of patient safety and quality assurance among public sector health care providers, nor does it incorporate the registration, inspection and enforcement of health care establishments owned by the mining companies.

Institutional arrangements

Organization and management

There are three categories of health service providers in Zambia: the public/state facilities, which include the Ministry of Health, military and other government health facilities; faith-based institutions under the coordination of the Churches Health Association of Zambia; and the private sector, including private and non-governmental organizations. In 2008, there were 1,355 public facilities, 117 faith-based facilities and 92 private facilities (Ministry of Health 2008d). Public facilities are the most dominant category of health providers, with faith-based facilities playing a critical role in remote rural areas and private facilities mainly limited to urban areas.

Prior to the 1992 health sector reforms, the health system was considered highly centralized and incapable of providing quality health care. Reformers embraced the deconcentration of power to provinces, districts and hospitals as the key strategy to ensure accountability and delivery of quality health care closer to the family. This required setting up autonomous boards that would manage hospital and district level services[1]. In order to provide a legal framework for the new structures, the National Health Services Act was enacted in 1995. After 10 years of operation, a 1995 assessment found these structures to have led to the duplication of functions, especially at the central level, resulting in "a bloated and costly central level structure" (Ministry of Health 2005d). The 1995 Act was repealed in 2005, resulting in the abolition of all boards. In 2006, the Government approved a new organizational structure to guide the restructuring of the health sector.

Some challenges are apparent, especially with regard to building the organizational capacity

[1]Although the reforms entailed the devolution of power from the centre to lower levels as a key strategy, what happened ultimately was the deconcentration or delegation of authority.

required for the new structure. There is a need to increase capacities and management skills; improve communication on the changes; and ensure that management, staff and sector partners are aware of and embrace the process.

Hospital management

Since the introduction of health sector reforms in 1992, policy makers have tended to focus on primary health care, with much less attention to secondary and tertiary level care hospitals. This is despite the fact that health care is a continuum from primary health through tertiary care, and that the credibility of primary care depends, among other factors, on the strength of the hospital referral system. In 1999, an attempt was made to bring hospitals on board the health reform agenda. The focus was on the formulation of a hospital policy, systems development (hospital health management information systems or HMIS, financial management, basic health care package, right-sizing, quality assurance and leadership) and improvement of the quality of patient care. To date, there has been limited progress, with few clear details on what should constitute hospital reforms.

Sector-wide approach to programming, aid architecture and coordination

Since 1994, Zambia's health sector has been co-coordinating external resources from its bilateral and multilateral cooperating partners. This arrangement was born out of the realization that uncoordinated aid to the health sector may undermine national health reform and the development agenda, weaken the health system, and adversely affect efforts to improve equity of access to quality health care and achieve better health outcomes. The Ministry of Health developed a sector policy on aid harmonization in consultation with cooperating partners in 1994. This policy was later coined the sector-wide approach to programming (SWAP). Implementation of this policy has contributed to aligning and coordinating most health sector cooperating partners' external assistance towards implementation of Government-led national strategic health plans.

While this has significantly improved the overall management of the sector, and from a sectoral investment point of view contributed to improving the coordination of external resources, the health sector is still faced with many aid coordination challenges that continue to undermine efforts to harmonize aid. This is particularly due to the disinclination of a number of cooperating partners to align their support within the SWAP framework[2]. Nearly all cooperating partners require the Ministry of Health to develop separate plans and budgets for efforts to tackle the major public health diseases (HIV and AIDS, tuberculosis and malaria), even though one strategic plan has clearly articulated all public health priorities. Currently, the health sector has more than five separate plans and budgets for the major global partners contributing to the fight against HIV and AIDS, tuberculosis, malaria and child health illnesses. This has exacerbated administrative inefficiencies as Ministry of Health staff devote excessive time to developing plans instead of implementing programmes.

Despite the existence of SWAP, the health sector is beset with cooperating partner coordination challenges.

Cooperating partners have identified some constraints on the part of the Government. There is, for example, undue delay in submitting cash flow and expenditure reports due to capacity limitations within the Ministry of Health. In addition, there is little confidence in the quality of health sector plans, which may have doubtful budgets and may not address difficult issues such as gender, sexual and reproductive health, and the rights of vulnerable groups such as adolescents. Plans often exclude NGOs, which deliver a good proportion of health services in rural areas. There is little confidence in the financial management and accountability mechanisms of the Ministry of Health, a problem fanned by a 2009 scandal where more than ZK10 billion was allegedly misappropriated by ministry staff. Some key cooperating partners subsequently withheld funding.

Budget Performance

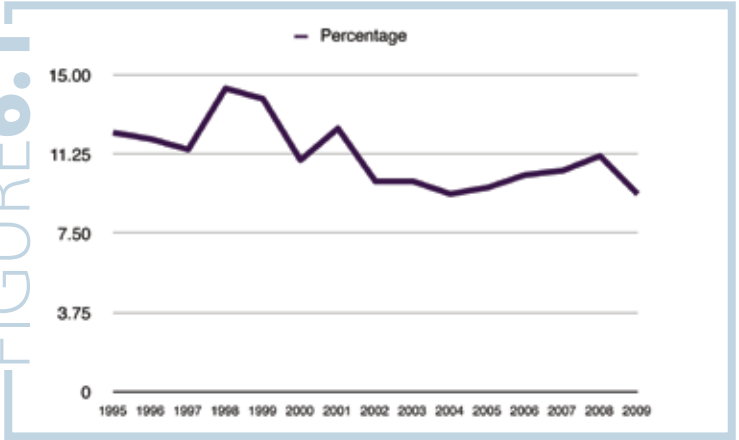
The government health budget was on average 10.4 percent of the national budget between 2000 and 2009 (Figure 6.1). Zambia has not been meeting the Abuja Declaration targets, which require African governments to spend 15

Public spending as a proportion of revenue remains below target

[2] Cooperating partners include those whose legal and administrative structures and procedures are not amenable to participation in SWAP arrangements, such as the United States Agency for international Development and Japan International Cooperation Agency, and most disease-oriented vertical programmes, such as those under the Global Fund to Combat AIDS, Tuberculosis and Malaria.

Trends in government health budget allocations, 1995-2009

FIGURE 6.1



Sources: Chansa 2009, MoFNP, Medium Term Expenditure Frameworks 2003 to 2009.

percent of their domestic discretionary resources on health. The highest allocation of 14.4 percent was attained in 1998, with the lowest being 9.4 percent for 2004 and 2009. The relative decline in the health sector's budgetary allocation compares unfavourably to education and defence, where allocations have steadily risen beyond those for health. In recent years, the resurgence of higher economic growth rates together with debt cancellation under the HIPC and MDI initiatives has resulted in the creation of some fiscal space for health services, leading to a small increase in allocations between 2004 and 2008. This trend could not be sustained in 2009, owing to the impact of the global financial and economic crises.

An analysis of the Ministry of Health domestic budget by level and functional areas brings out the following. Budgetary allocations to ministry headquarters have experienced the highest increase, from 20 percent of the total budget in 2004 to 48 percent in 2009. On the other hand, allocations at other levels, such as tertiary and general hospitals, have been constant at 10 percent and 8 percent, respectively. The allocation to district health services increased from 19 percent in 2004 to 24 percent in 2007, and remained stable in 2008 and 2009. For training Institutions, allocations increased from 0.9 percent in 2004 to 5.4 percent in 2005, and then started declining continuously between 2006 and 2009. These results imply that allocations might not be optimal across the different levels, with the administrative centre taking up a high proportion of the budget compared to lower level structures responsible for service delivery.

Low allocations for personal emoluments have led to the continued loss of skilled staff to better-paying jobs in the private sector and abroad.

In terms of budgetary allocations by components of the recurrent budget (personnel emoluments, infrastructure and equipment, and drugs and vaccines), the proportion directed to personnel emoluments has not been growing. This means that there is insufficient funding for replacing staff leaving the health sector, for reasons including resignations in search of better-paying jobs in the private sector and abroad. This is happening in the midst of a crisis of human resources in the health sector, the expansion of health training countrywide, and the scaling up of the Zambia Rural Retention Scheme to cover more health professionals.

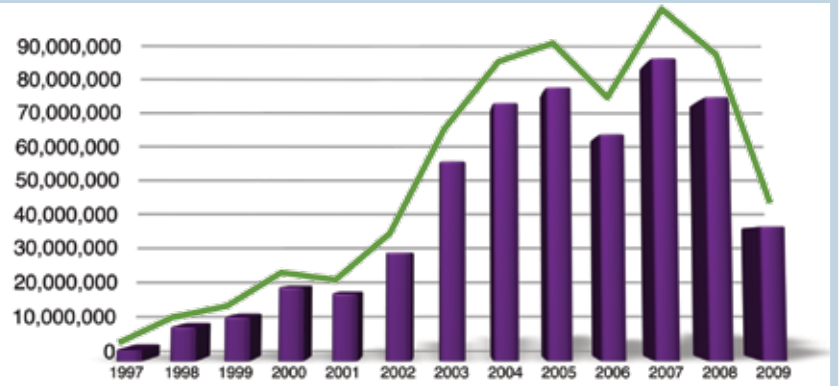
Regarding Ministry of Health allocations for drugs and vaccines, the average was around 9 percent of the total budget from 2004 to 2009. This percentage is lower than in other Sub-Saharan African countries, where expenditures on drugs as a percentage of total public spending on health have been estimated at around 33 percent (Bennett et al. 1997). Low allocations for infrastructure and equipment make it hard for the Ministry of Health to rehabilitate rundown health facilities, build more facilities in needy areas and replace obsolete equipment.

Ultimately, the quality of health care provision will be compromised if all three key inputs for health service provision—personnel emoluments, infrastructure and equipment, and drugs and vaccines—are underfunded.

Other than domestic resources from the Government, the health sector in Zambia receives

Actual releases from donors through the Ministry of Health, 1997-2009

FIGURE 6.2



Source: Ministry of Health, Department of Planning, Accounts Unit.

significant external financial resources (Figure 6.2). Over the past 10 years, there has been a steady increase in the flow of funds from donors that use the Ministry of Health accounting system. In 2008, disbursements were problematic due to the global financial crisis, while in 2009, almost all key donors contributing to an expanded basket of funds withdrew due to the allegations of financial mismanagement in the Ministry of Health. Withdrawal of funding was very significant, as only 39 percent of the total donor pledged amount was actually disbursed in 2009.

Sector Performance

The health sector has attained substantial positive outcomes in the reduction of child and maternal mortality, as well as in addressing key disease areas such as HIV, tuberculosis and malaria. More efforts are required in order to sustain and improve on these outcomes, while ensuring equity and efficiency in service delivery.

Various indicators show that substantial positive outcomes have been attained.

Child health

Overall, the infant mortality rate fell from 95 deaths per 1,000 live births in 2003 to 70 deaths per 1,000 live births in 2007. The under-five mortality rate dropped from 168 deaths per 1,000 live births in 2003 to 119 deaths per 1,000 live births in 2007 (Central Statistical Office et al. 2009). These improvements could be linked to some interventions, including the expansion of vertical programmes addressing HIV, tuberculosis and malaria; de-worming activities; massive Vitamin A distribution; and stronger integrated management of childhood illnesses. Further reductions in child mortality will require more concerted actions, specifically in reducing paediatric HIV infection levels, investing in the prevention of mother-to-child transmission (PMTCT) for virtual elimination of HIV transmission, and addressing cross-sectoral factors such as nutrition, access to clean water and sanitation, and improved living environments for children.

Infant and child mortality rates have declined.

Maternal health

As was indicated in the chapter of this report on the MDGs, there has been a reduction in the level of maternal mortality, from 729 deaths per 100,000 live births in 2002 to 591 deaths per 100,000 live births in 2007. The main factors that contributed were: scaling up long-term methods of family planning to 33 districts; expanding the provision of emergency obstetric care from 18 to 50 districts; improving referral systems; and scaling up safe motherhood groups from 12 in 2008 to 43 by the end of 2009. Further reduction in mortality could be attained by continued extension of all of these services. Other factors that need to be addressed include inadequate access to health facilities, which forces many women, especially in rural areas, to deliver at home.

The maternal mortality rate has declined, but further reduction is required, especially in rural areas.

The scourge of HIV and AIDS also has a limiting effect on the impact

of interventions to reduce maternal mortality. As with the delivery of other health services, dependence on donor funding is a major source of concern. The human resource crisis continues to slow implementation of requisite interventions.

HIV, tuberculosis and malaria

Zambia has a high prevalence of HIV, tuberculosis and malaria. HIV prevalence among Zambian adults aged 15-49 declined from 23 percent in 1991/1992 to 15.6 percent in 2001/2002 and 14.3 percent in 2007 (Central Statistical Office et al. 1997, 2003 and 2009). Partly as a consequence of HIV, tuberculosis is among the major public health problems, with the TB/HIV co-infection rate estimated at about 70 percent. There has been a recent reduction in cases of TB with 50,415 cases recorded in 2007 and 47,333 in 2008. A treatment success rate of 85 percent has been achieved per the target of the World Health Organization (WHO), while the defaulter and death rates stand at three percent and seven percent, respectively (Ministry of Health 2009a and 2010).

The main drivers of morbidity, namely HIV, tuberculosis and malaria exhibited declining trends, despite critical resource constraints.

Increased external funding earmarking vertical programmes, a universal access approach, enhanced clinical training and care protocols, and massive community awareness and mobilization campaigns have all contributed to improved outcomes. A critical staff shortage and heavy dependency on external donor funding, however, continue to raise questions about sustaining gains in the long run.

Malaria has over the years remained the number one cause of morbidity and mortality in Zambia. The occurrence is mainly related to rainfall distribution and geographical location. The worst affected areas are the hot, low-lying river valleys, lakes and wetlands, where 40 percent of children aged 5 to 14 years are constantly infected with the malaria parasite (UNICEF 2009). These areas are typically remote, with high levels of poverty. Most informal settlements and poor shanty compounds are found in outlying and marginal areas, often characterized by a risk of malaria (ibid.).

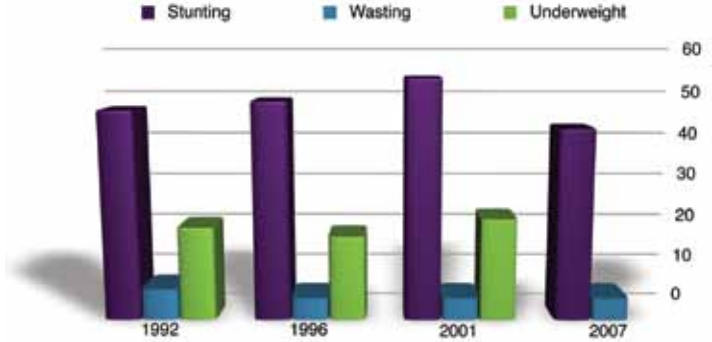
There has been a significant reduction in the prevalence of malaria parasitemia among children under the age of five (Ministry of Health 2009c). Parasite prevalence fell from 22 percent in 2006 to 10 percent in 2008, while the prevalence of severe anaemia among children under age five declined from 14 percent to 4 percent over the same period. The major drivers of the reduction are the distribution of over five million insecticide-treated bed nets, intensification of artemisinin-based combination therapy, expansion of intermittent presumptive treatment prophylaxis for pregnant women and the resumption of indoor residual spraying.

Other areas

Other significant achievements in service delivery comprise the school health programme in all nine provinces; increased attention to neglected tropical diseases, with substantial efforts exerted to treat high-risk groups for Bilharzia with half-yearly Praziquantel; greater focus on non-communicable diseases and the expansion of eye care.

Trends in under-five malnutrition levels by type, 1996-2007

FIGURE 6.3



Source: Central Statistical Office et al. 2009.

High levels of undernutrition, mainly in the form of protein energy malnutrition and micronutrient malnutrition, and underfunding of the National Food and Nutrition Commission are still worrisome (ibid.). Malnutrition is primarily a reflection of the longstanding poverty that affects the majority of the Zambian population. Comparative analysis shows that the nutritional status of children in Zambia has continued to deteriorate over the years (Central Statistical Office et al. 1993, 1997, 2003 and 2009). The latest Zambia Demographic and Health Survey (ibid. 2009) indicates that chronic malnutrition stands at 43 percent, underweight at 14 percent and wasting at 5 percent of all children under-five years old. These are extremely high figures by all standards (Figure 6.3).

Performance in the Delivery of Health Services

Efficiency and effectiveness

This section discusses trends in three health delivery indicators—health centre staff-patient average daily contacts ratios, availability of drugs at health centres and hospitals, and the bed occupancy rate—to illustrate progress in service delivery.

The health centre staff-patient daily contacts ratio is high, implying a high level of inefficiency due to staff work-loads.

The economic and human costs of poor human resources management and low productivity are particularly high in a labour-intensive health system (Adams et al. 2004). Staff shortages and unequal workload have negative effects on access to care, quality of care and patient demand, contributing to overall inefficiency in health care delivery (ibid.). In Zambia, staff workload at the health centre level is measured through the health centre staff-patient daily contacts ratio, which assesses the average number of patient contacts for each qualified health worker in a given reporting period, excluding holidays and weekends (HMIS 2008).

Accordingly, the national health centre staff-patient average daily contacts ratio fluctuated from 2005 to 2008. The ratio increased from 17.4 in 2005 to 18.2 in 2006, fell to 17.8 in 2007 and then increased to 18.6 in 2008.

Further analysis shows that all provinces, except for Copperbelt and Lusaka, had a health centre staff-patient daily contacts ratio of more than 15 from 2005 to 2008. The situation was worse in rural provinces, namely, Eastern, Luapula, Northern, Western and North Western. They had higher workloads compared to the urban provinces, Lusaka, Copperbelt, Central and Southern. For example, in 2008, the health centre staff-patient daily contact ratio was 36.4 in Eastern Province, compared to 11.7 in Copperbelt and the national average of 18.6 (Figure 6.4).

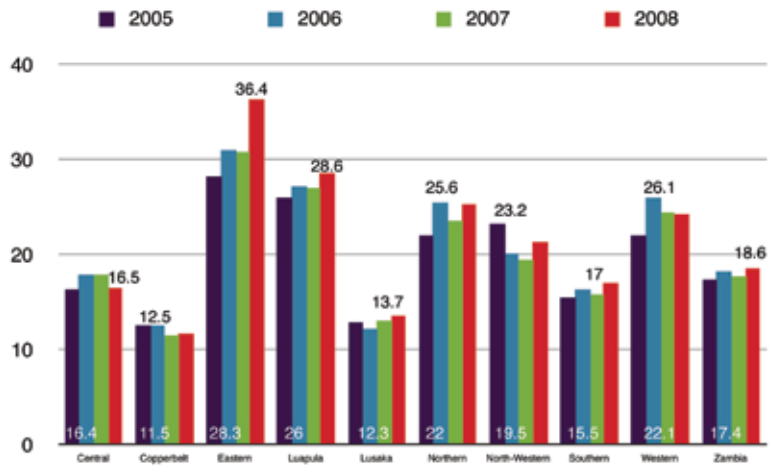
The implication is that existing staffing levels are inadequate to meet the health demands of the population, leading to high staff workloads, especially in rural areas. This has the tendency to compromise the quality of care.

The availability of essential drugs is one of the proxy measures of the quality of health service provision.

Availability of drugs in health centres and hospitals dropped from 74 percent in 2006 to 69 percent in 2008.

Health centre staff-patient daily contact ratio by province, 2005-2008

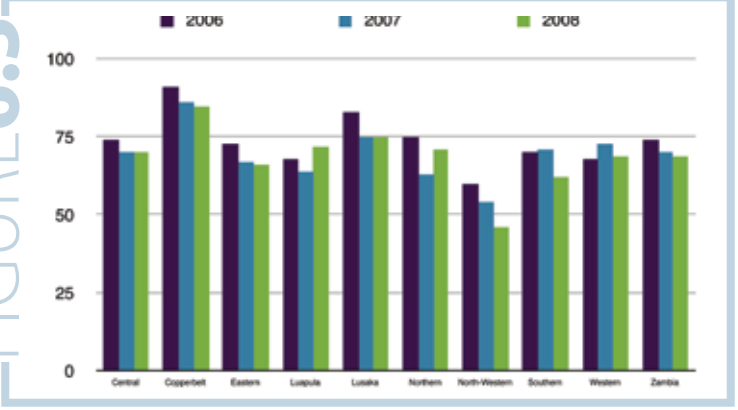
FIGURE 6.4



Sources: Health Management Information System Bulletin 2007, 2008.

Percentage of months in a year for which drugs were in stock in health centres by province, 2006-2008

FIGURE 6.5



Sources: HMIS Bulletin 2007; 2008.

In Zambia, availability in health centres and hospitals is measured by monitoring the proportion of months during a given time period that tracer drugs were in stock. A review of drug availability from 2006 to 2008 suggests that the supply was erratic.

Figure 6.5 shows that the percentages of months in a year for which drugs were in stock in health centres declined from 74 percent in 2006 to 70 percent in 2007, and then 69 percent in 2008. Among the provinces, North Western consistently recorded the lowest drug availability throughout the review period; it was on average 53 percent—essentially, half the time.

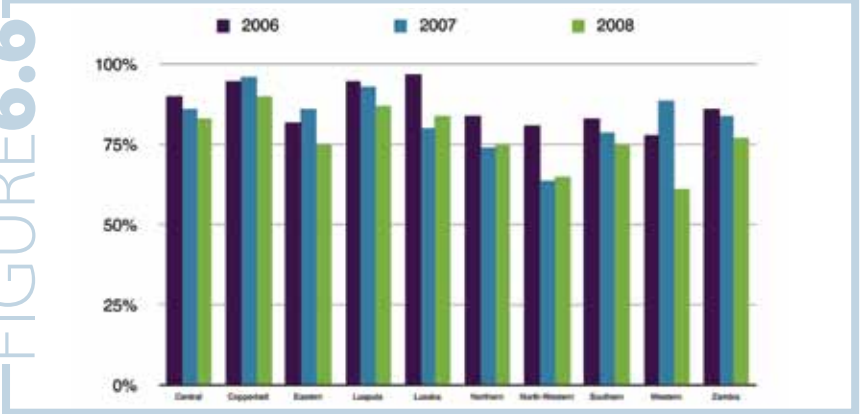
The percentages of months in a year for which drugs were in stock in hospitals fell from 86 percent in 2006 to 84 percent in 2007, and 77 percent in 2008. North Western province once more recorded the lowest availability, averaging 70 percent between 2006 and 2008 (Figure 6.6).

A cross-comparison of drug availability at health centres and hospitals revealed that the latter generally had a higher national percentage of drug availability of 82 percent, while the health centres were at 71 percent. The data also suggest that urban provinces such as Copperbelt, Lusaka and Central were better stocked with drugs than rural provinces, especially North Western, Luapula and Eastern.

There are several reasons for the poor performance of the drugs supply system. These include, among others, inadequate pharmaceutical managerial capacities at the various levels (central, district and facility); pilfering; poor prescription habits of health care staff and varying disease patterns. The current Drug Logistics Management Information System is regarded as weak in providing consumption data from facilities and districts that ought to inform procurement and drug distribution patterns. Further, although

Percentage of months in a year for which drugs were in stock in hospitals by province, 2006-2008

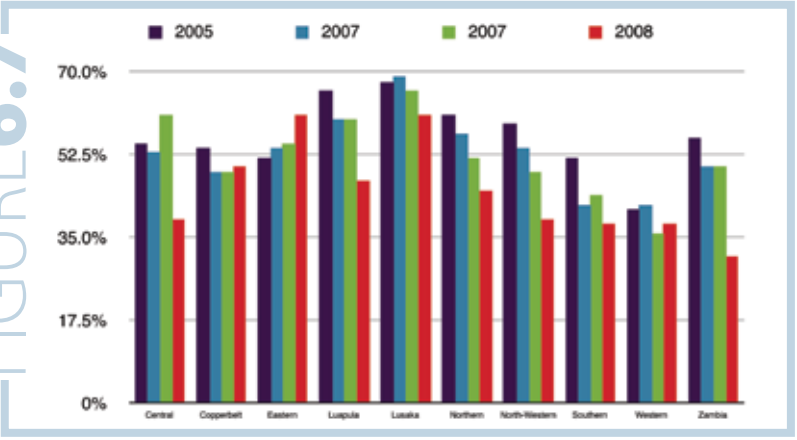
FIGURE 6.6



Sources: HMIS Bulletin 2007; 2008.

Hospital bed occupancy rate by province, 2005-2008

FIGURE 6.7



Sources: HMIS Bulletin 2007; 2008.

drug and therapeutic committees exist at district and hospital levels, there are no national support systems or strategies to reinforce their functioning. Most committees remain dormant and irrelevant to pharmaceutical management. For facilities in rural areas, inadequate staffing, poor transport and insufficient cold chain facilities further exacerbate drug supply problems.

The Ministry of Health uses the bed occupancy rate to measure the efficiency of hospitals in terms of inpatient treatment. This indicator is calculated by measuring the average percentage of beds in use on an annual basis. Ideally, the bed occupancy rate should not be less than the national target of 80 percent. Figure 6.7 shows data on the trends by province from 2005 to 2008. The national bed occupancy rate for all hospitals declined from 56 percent in 2005 to 50 percent in 2006 and 2007, and then it fell to 31 percent in 2008. The worst hit provinces were Western, Southern and North Western, in that order.

There is low utilization of hospital space in Zambia. The bed occupancy rate for all hospitals declined from 56 percent in 2005 to 50 percent in 2007.

The declining bed occupancy rate suggests decreasing efficiency in the utilization of inpatient hospital facilities. Masiye (2007) found similar results. He argued that overall, Zambian hospitals are operating at a 67 percent level of efficiency, implying that significant resources are being wasted. His study further revealed that the size of hospitals and input congestion are major sources of inefficiency.

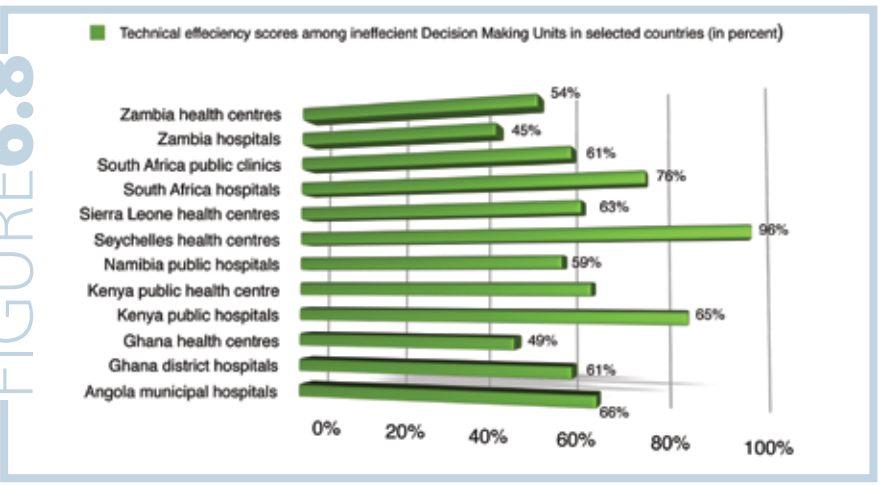
The low utilization of hospitals could be related to the quality of care being provided. Provision of quality health care usually depends on the availability of essential drugs and medical supplies, equipment, human resources and adequate financial resources. The extent to which the desired level of physical output is being produced from the available resources at the hospital level in Zambia is questionable. This could be due to underfunding of hospitals, obsolete medical equipment and inadequate staffing. Another explanation for the reduction in bed occupancy could be the decline in the incidence of HIV infections and roll out of ART countrywide. There is anecdotal evidence that this has reduced both the incidence of HIV-associated opportunistic infections and the need for inpatient admissions.

The National Health Accounts indicate that expenditures at government and mission hospitals combined (tertiary, general and district) was on average 45 percent of government health sector expenditures from 2005 to 2006 (Ministry of Health 2008b). This figure is at the minimum level of the prevailing average in Sub-Saharan Africa, where the amount spent by government hospitals as a proportion of government health sector expenditures is estimated at 45 percent to 69 percent (Kirigia et al. 1998, Mills et al. 1993 and Zere et al. 2006).

Barnum and Kutzin (1993) estimated that hospitals at every level taken together can consume 50 percent to 60 percent of recurrent national health budgets, with the proportion increasing as countries become richer. This implies that the amount spent on hospitals in Zambia is insufficient, because the country has more hospital beds than most countries in the region. The World Bank (2010) observes that Zambia has more hospital beds than what it can afford to sustain through budget revenues. With 20 beds per 10,000 people, Zambia has a higher ratio than most countries on the African continent (ibid.).

Review of health facility efficiency studies in selected African countries

FIGURE 6.8



Source: Kirigia and Diarra-Namaa 2008.

With high levels of technical inefficiency (Figure 6.8), a significant proportion of scarce resources are wasted in Zambian hospitals. Zere et al. (2006) observed that such a situation can further compound the existing shortage of resources. As a corrective measure, Kirigia and Diarra-Namaa (2008) proposed ways of increasing the provision of health services using existing levels of resources. These include initiating health promotion strategies to create demand; transferring specific inputs from over-resourced to under-resourced health facilities; improving the allocation of resources by regions and levels of care; and basing the choice of capital investments and public health interventions on cost-effectiveness and cost-benefit analysis criteria (ibid.).

Infrastructure development and access to facilities

The number of public health facilities grew by 95 percent between 1980 and 2008—from 802 facilities in 1980 to 1,564 in 2008. Despite building more health centres and health posts in the rural areas over the past years, the country still faces challenges related to geographical coverage and the distance to health facilities in rural areas. This is particularly true for remote poor districts with bad road networks and rough terrain. By the end of 2007, only 50 percent of the Zambian population lived within five kilometres of a health facility, while 69 percent lived within a radius of eight kilometres (Ministry of Health 2007b). Investments in infrastructure development have not followed population growth.

In 2007, only 50 percent of the population lived within five kilometres of a health facility.

The Government has been sending patients for specialized treatment abroad since the early 1990s (ibid.). Due to limited capacities at the national referral hospital, University Teaching Hospital, referral of patients from Zambia to India, South Africa, the United Kingdom, the United States and Zimbabwe are made for complicated cases that require specialized treatment. The early phases of this referral system experienced substantial challenges. A differentiated patients pricing system in the private health care industry in South Africa meant that foreign patients were charged rates as high as 200 percent of those for local South African patients. Huge administration costs were incurred for cases involving various service providers over a long period of time, and there were difficulties in reconciling invoices due to complex billing systems. Other issues were the lack of a system for medical case management, and apparent abuse of the treatment abroad facility by patients. In 1999, the Ministry of Health engaged an independent company, Inter-health Technologies, to assist in managing referrals and associated administration. This decision yielded positive results immediately: There was a substantial reduction in medical bill charges, the waiting time for patients to be referred to South Africa was reduced, double billing was addressed, and a system of medical case management was introduced to monitor treatment regimes, costs levied on patients and the length of stay of a patient.

For every 350 patients put on the list for specialist treatment abroad, only 10 percent are actually referred.

As the population of Zambia increases, so do the incidences of complicated cases requiring specialized treatment. Patients needing cardiac, neurology and renal services are referred for specialized treatment in India and South Africa at great cost to the Government. Records at the Ministry of Health show that it costs on average US $30,000 (ZK150 million) to send a minor cardiac patient for treatment in India, while a severe case requiring ventilation in intensive care costs up to US $100,000 (ZK500 million). Every year, from 2005 to 2008, about 350 patients were put on the waiting list for treatment abroad against an annual budget allocation averaging US $1.5 million (ZK7.5 billion). Given the meagre sum, only a tenth of the patients were referred abroad.

The treatment abroad facility has recently been criticized for giving preference to politicians and people with influence, a majority of whom can afford to pay for their treatment. This comes at the expense of the poor and raises equity concerns.

Given exorbitant costs and equity concerns, many experts have proposed that the Government put in place specialized local health infrastructure. According to the WHO, a population of 2 million needs to have a radiotherapy facility, and cardiac and renal units; Zambia would need six of these configurations to cover its population. While it recently constructed a radiotherapy facility and has 15 renal dialysis machines, it does not have fully functional cardiac and neurology units to manage complicated cases.

Cost recovery

Until the early 1990s, the Zambian Government provided free health services to all its citizens. User fees were introduced in 1993 to foster ownership of the health system through community participation, improve staff motivation and accountability through performance bonuses, and raise additional income to improve the quality of services at the point of collection (Central Board of Health 2002). An exemption mechanism was introduced as part of the user fees policy to assist needy and vulnerable members of society, children under five years old, adults above 65 years old and pregnant women (ibid.). After 13 years, Zambia in 2006 discontinued charging fees in all rural health facilities in 54 rural districts. Anecdotal evidence at that time showed that fees were inhibiting access to health services by vulnerable groups as appropriate waivers and exemptions were not well applied (Masiye et al. 2005).

Since the removal of some user fees, the Ministry of Health has conducted a number of surveys that show that the utilization of health centres increased from 7 percent to 29 percent across the country (Ministry of Health 2006b). Masiye et al. (2008) concluded that utilization had increased by 50 percent with a greater proportion of the poor population recording greater rates of increase. Drug consumption was said to have risen by 40 percent, while the staff workload also increased slightly. Other recent studies (Cheelo et al. 2010) revealed that user fees represented a significant part of income in some facilities, which are now challenged by the loss of flexible cash. They observed that user fees offered important flexibility, predictability, community involvement and so on. The flexibilities are particularly noteworthy in view of occasional delays in remittances of district basket grants by the Ministry of Health (ibid.).

The removal of some user fees resulted in increased utilization of health services across the country, but plans for scaling up the policy are uncertain.

It was expected that the Ministry of Health would scale up the policy to fully cover all 73 districts and level two and three hospitals. These plans seem to have been halted, however, and the Ministry is currently trying to make user fee collection, where it still exists, more efficient, while strengthening the exemption mechanism. This comes after a 2009 survey at all level two and three hospitals showed that the direct income from user fees was about 15 percent of the total income at level three hospitals. At all 19 level two hospitals, the direct income from user fees was about 12 percent of the total income, ranging from 2 percent to as high as 45 percent.

Health workers

Zambia, like many developing countries in the Sub-Saharan region, faces a critical shortage of health workers, a situation that was described as a disaster in 2004 (Ministry of Health 2004).

Human resource shortages are caused by a number of factors but the Ministry of Health (2005b) has observed that the most prominent ones are: unattractive conditions of service (pay, allowances and incentives); poor working conditions (facilities, supplies and equipment); weak human resource management systems; and inadequate education and training systems, including inconsistencies in implementing training policies for continuing medical education.

Inadequate staffing levels mean that many health facilities are understaffed, with the situation being more acute in rural areas. Some rural health centres are run by unqualified people, such as classified daily employees. Staff in-post for all clinical and other health workers was estimated at 39 percent by the end of December 2009, leaving a 61 percent gap against the recommended staffing level (Ministry of Health 2010).

Service delivery in hospitals is adversely affected, with almost all hospitals understaffed and many patients being attended to by one qualified health worker. New facilities constructed to improve access to health services remain closed due to lack of staff (ibid.). In addition, there are insufficient health workers to scale up and expand the delivery of essential health services, such as for HIV and AIDS, and TB, and to provide specialized care.

The staff-to-population ratio is lower than the recommended standard set by WHO and performance in neighbouring African countries. The Ministry of Health (ibid.) estimates the number of clinical health workers (public sector doctors, clinical officers, nurses and midwives) at 0.93 per 1,000 people in 2009, compared to the WHO recommendation of 2.5 per 1,000 people. As of December 2009, Zambia was short by 19,606 clinical health workers, according to the standard (ibid.).

Zambia has one of the lowest staff-to-population ratios, making the expansion of critical services difficult

To address the inequitable distribution of health workers, the Zambia Health Workers Retention Scheme, initiated in 2003 as an exclusive programme for medical doctors, was expanded to include more diverse categories of health workers. By the end of 2009, 860 health workers were part of the scheme, comprising different categories of staff, up from 103 medical doctors alone in 2006. Even if the initiative has contributed to an improved distribution of health workers between the more deprived districts and others, however, it has not led to the worst districts getting the largest share of health workers (ibid.).

Apart from the retention scheme, the Ministry of Health and its cooperating partners expanded the training of health workers as one of the key strategies to alleviate the human resources crisis. Student enrolments for 2008 to 2009 rose by 75 percent nationwide (Ministry of Health 2009). The aim was to increase the national training output from the existing 1,720 health workers per year to 3,700 health workers per year by 2010 (ibid.).

But unless the economy improves considerably, the Ministry of Health might not be granted authority by the Ministry of Finance to recruit all graduating medical students, because the public wage bill in relation to GNI might be bloated. The Ministry of Health is wary of this fact. It observes that the public wage bill in relation to GNI for Zambia is the highest in the region, and is not sustainable according to the International Monetary Fund (IMF) standard (Ministry of Health 2009d). Trends in the recruitment of core health workers between 2004 and 2009 already suggest that the actual number of recruitments against funded positions was less than the national training output. Recruitments totalled 571 in 2004, 1,336 in 2005, 690 in 2006, 1,300 in 2007, 1,002 in 2008 and 1,610 in 2009 (Ministry of Health Human Resources Database 2009d).

Cross-cutting Issues

HIV and AIDS

Zambia is among the countries in Sub-Saharan Africa with a high prevalence of HIV and AIDS, at 14.3 percent. Epidemiological projections indicate that by 2015, AIDS will have increased the number of annual deaths in Zambia by 83 percent, and 2.8 million people will have died, in the absence of major changes in treatment or prevention (Resch et al. 2008, citing UNAIDS). Life expectancy at birth has declined since 1980,

Recently there has been a 75 percent increase in student health worker enrolment. Their eventual absorption into the public health sector is uncertain due to financial constraints.

when it was estimated to be 52 years for males and 52.5 years for females. In 1990, the estimates were 46.1 years for males and 47.6 years for females. By 2000, life expectancy was estimated to have increased to 48 years for males and 52 years for females (Central Statistical Office et al. 2009). HIV and AIDS will likely negatively impact the economy through lower GDP output growth and reduced standards of living. Resch et al. (2008) predicted that in the medium term, HIV and AIDS will reduce the per capita GDP by 5.8 percent, with 30 percent of the reduction attributable to the disease's impact on the capital-labour ratio, and 53 percent from experience and knowledge loss due to AIDS mortality.

An annual 82,000 new cases of HIV threaten Zambia's economic growth and human development

From 2005 to 2009, there were significant achievements in delivering HIV and AIDS services. As part of the strategies under prevention, the number of VCT centres increased from 450 in 2005 to 1,563 in 2008. PMTCT and post-exposure prophylaxis services were rolled out in all 72 districts, with 1,100 health facilities offering PMTCT services by end of 2009, up from 67 sites in 2005 (Ministry of Finance and National Planning 2010). The scaling up of PMTCT services has led to an increase in the percentage of HIV-positive pregnant women who have completed prophylaxis treatment, from 29 percent in 2006 to 66.4 percent in 2009. The provision of free ART through the public health system since mid-2005 has fostered increased access to HIV drugs, from 33 percent of HIV-positive eligible clients in 2006 to 79.4 percent in 2009. This translated into 283,771 people being on ART out of the 357,240 persons requiring it—more than 21,000 people on ART were children below the age of 15 (ibid.).

Access to ART has improved, but sustainability remains an issue.

Donors have been the major sources of HIV and AIDS health expenditures in Zambia. They accounted for 60 percent of the total in 2005 and 74 percent in 2006 (Ministry of Health 2008a). Households are the second largest source of total HIV and AIDS health expenditures, although their share declined from 19.7 percent in 2003 to 16 percent in 2005 and 13.9 percent in 2006, due to the introduction of the free ART policy. The government was the third largest source of total HIV and AIDS health expenditures, estimated at 9.8 percent in 2003, 7.7 percent in 2005 and 9.6 percent in 2006 (ibid.).

Apart from financial resources, significant human resources have to be mobilized to sustain the current coverage levels and to achieve equitable access for all Zambians living with HIV. The shortage of health personnel makes the fight against HIV and AIDS and its opportunistic infections more complicated. In 2007, for instance, the total required number of full-time equivalents of health worker labour to sustain HIV and AIDS activities was 2,124, but only 318, or 15 percent, were available (Resch et al. 2008).

The Government could critically look into the implementation of HIV and AIDS services, which are at the moment not financially and institutionally sustainable. Additional financial, human and physical resources will be required to scale up service delivery; continued donor funding will be needed. A financial sustainability plan could be developed to commit more resources towards the HIV and AIDS programme at a progressive rate, and reduce donor dependency in the long run.

Gender equity

The Ministry of Health commissioned a study on gender in 2006 aimed at assessing gender mainstreaming in the health sector. It recommended that gender be systematically mainstreamed in all public health programmes, that gender focal points be appointed at all levels, and that the routine health information system be disaggregated to a level that allows gender analysis.

Some of these recommendations have been incorporated in gender mainstreaming in specific policies, such as on reproductive health, food and nutrition, and child health. In 2006, gender focal points were appointed at all provincial and district levels, and provided with short-term training in gender mainstreaming. This system, however, has not been fully functional. The

Gender mainstreaming remains low and is adversely affected by staff shortages.

structures within which focal points are supposed to operate are not well developed and defined, there are no gender mainstreaming guidelines in place, and capacities to mainstream gender into programmes and activities remain inadequate (Ministry of Health 2008a).

Further, although the HMIS system has been designed to collect gender-disaggregated data, the data at provincial and national levels are still not disaggregated by sex. Data in the 2008 and draft 2009 Annual Health Statistics Bulletins have not been disaggregated by sex. As such, it is difficult to measure progress in gender-related work in the health sector.

Disability

The 2000 Census showed that people living with disabilities constitute at least 3 percent to 10 percent of the population, depending on the definitions applied. Many live in conditions of extreme poverty and find it difficult to access health services, constrained by factors such as inaccessible buildings, a lack of facilities and a lack of disability aids in the health centres. Because of poor recognition of rights in general, not much attention is paid to the issue of disability; many affected people are excluded from accessing life-saving services. For example, information on issues such as HIV and AIDS, contraceptives, vaccinations, etc. may not be available in Braille and sign language.

As a result of adopting the Convention on the Rights of Persons with Disability, and the actions of the disability movement, some awareness raising and sensitization has taken place for health workers. Some have received training in sign language. The lack of resources makes it difficult for health workers to address these issues on the required scale.

Governance

The principle of accountability aims at ensuring that all resources are used for intended purposes in a professional and transparent manner (ibid.). The Ministry of Health is accountable for actions taken in accordance with the Public Finance Act no. 15 of 2004. As part of the SWAP coordinating mechanisms, fiduciary management systems have been developed to guide and control planning, procurement and financial management for the health sector. These systems are grounded in national fiduciary management policies and systems, and include policy and regulatory frameworks, institutional and implementation frameworks, and a monitoring and evaluation framework.

Account-ability systems remain constrained by low institutional capacity and lack of staff.

The mid-term review of the National Health Strategic Plan (2006-2010) observes that systems to provide comprehensive reports on the use of funds in accordance with the approved budgets are not available. Further, accountability at the Ministry of Health has been constrained by the overall government financial accounting system, which is supposed to be used by all government ministries and yet it is not robust enough to protect resources from abuse. The accounting function at the Ministry is also undermined by limitations in institutional capacities, particularly the continued shortages of financial and logistics management professionals. Revelations of financial misappropriation in 2009 justify the need for continuous reviews and strengthening of accounting, audit, procurement and other financial management systems.

Environment and health

Poor environmental sanitation is a major source of public health problems and epidemics. While several strategies to improve hygiene and achieve universal access to safe and adequate water, food and acceptable sanitation have been highlighted, the poor state of housing, water and sanitation services, and household food insecurity stand in the way.

A lack of safe water and sanitation has over the years significantly contributed to the decline in public health. For example, by 2007, access to safe water and good sanitation was 41 percent and 24 percent, respectively, with the situation worse in rural areas (Central Statistical Office et al. 2008). This probably explains why diarrhoea

(non-bloody) has been among the top 10 main causes of morbidity and mortality in Zambia for decades.

The incidence of respiratory infections (non-pneumonia) is also high and has been among the top 10 causes of morbidity and mortality. This is mainly due to poor housing and overcrowding, leading to poor hygiene, air and noise pollution. Other common conditions directly related to environmental exposures and living in unsafe areas are eye and skin infections; respiratory infections (pneumonia); intestinal worms; and traumas (accidents, injuries, wounds and burns).

Conclusions and Recommendations

Over the past two decades, the health sector has managed to improve service delivery and attain some positive outcomes. The mortality rate for children under five has declined; maternal mortality rates have fallen; the spread of HIV is slowing; the incidence of tuberculosis has been reversed; and the malaria incidence has been significantly reduced.

More effort is required to accelerate the attainment of even better health outcomes. The child mortality rate is still high; the maternal mortality ratio is still unacceptably high; epidemics are still a major cause of chronic illness and death; and malnutrition (stunting, underweight and wasting) does not seem to have improved since the early 1990s.

Some of the critical bottlenecks to improved service delivery include human resource shortages in provider institutions, low levels of government funding for infrastructure investments and service provision, an inefficient pharmaceutical management system, and a policy and regulatory framework that is often not sufficient or contemporary enough to adequately address service delivery shortfalls.

Key recommendations are therefore as follows:

- Accelerate investments and prioritize packages of high-impact interventions in scaling up health services: There is global consensus on what constitutes such packages for child mortality, maternal mortality, and HIV and other epidemics, among other areas. The consistent implementation of such packages, over a decade, should enable the country to significantly improve the health status of the population and human development.
- Increase the number of health workers to improve service delivery: This entails expanding the capacities of training institutions; extending mechanisms for motivating and retaining staff in health facilities, particularly in rural areas; and putting measures in place to improve the productivity of the current stock of health workers.
- Make available adequate infrastructure, medical equipment and essential drugs at all times as a basic prerequisite for assuring quality care: Targeted capital investments and technical support are required to strengthen the three levels of health care and improve service delivery.
- Hospitals in Zambia could benefit from technical and managerial improvements around patient management, quality assurance and other operational systems. A policy or reform in this direction could contribute to strengthening hospital capacities and improve service delivery. Specialist treatment abroad is costly and can be inequitable. The building of local capacities to handle most specialist treatment and diagnostics ought to be explored.

Chapter 7

Water and Sanitation

Water and sanitation services are part of the infrastructure needed for human development and well-being. Adequate and clean water for consumption is critical in ensuring healthy lives, while appropriate sanitation prevents diseases and assures dignity to individuals.

When poor people lack access to water, both for consumption and productive activities, and sanitation, human development is unlikely to improve. But requisite high levels of investment often hamper their access. Cost-recovery and commercialization can be difficult to implement, and are generally more feasible in more urban areas. Service providers may be absent in rural areas and barely able to survive in peri-urban areas, leaving communities to find other ways of coping. Natural resource management, environmental controls and land use management are additional elements that must be addressed.

According to the UN Children's Fund (UNICEF 2008), in 2006, 58 percent of households had access to safe drinking water—43 percent in rural areas and 88 percent in urban locations. Only 13 percent of rural residents had access to adequate sanitation. In urban areas, despite high rates of access to safe water, there are concerns over quality and overcrowding. Only 40 percent of small-scale rural households, which consist predominantly of women, were accessing safe drinking water.

This report emphasizes three aspects of the delivery of water and sanitation: urban and peri-urban services, rural services and national solid waste management. It analyses Zambia's performance in delivery and identifies contextual factors. Overall, findings on the efficiency and effectiveness of service delivery are mixed. There have been intermittent increases in water supply coverage in both urban and rural areas in recent years. Sustainability remains an issue, however. The global financial and economic crises, HIV and AIDS, and climate change have taken their tolls. Water quality and sanitation still present major challenges, and regional variations in services call for concerted attention.

Service Delivery Framework

Policy and legal framework

The organization of the water and sanitation sector remains complex, despite several attempts to streamline it (Box 7.1). The

The efficiency and effectiveness of institutions is weakened by the multiplicity of acts and conflicting policies in the sector.

legal framework for service delivery is the Water Supply and Sanitation Act of 1997. It created the National Water Supply and Sanitation Council as a regulatory body under the Ministry of Energy and Water Development, which manages water resources, while at the same time mandating the Ministry of Local Government and Housing to be responsible for the delivery of water and sanitation. This effectively undermined most of the principles of the National Water Policy of 1994, blurring the lines between water resource management and service delivery. The Water Supply and Sanitation Act mostly addresses the provision of services in urban areas.

Other relevant strategies are the National Environmental Sanitation Strategy for Rural Areas adopted by the Cabinet in 1997, and the Peri-Urban Water Supply and Sanitation Strategy adopted by the Cabinet in 1999. They have in common the development of sustainable water systems in low-income urban communities as well as the strengthening of institutional capacities. They both prescribe participatory and partnership approaches by communities.

Service delivery institutions

There are two main actors: the Ministry of Energy and Water Development, responsible for water resource management and development, and the Ministry of Local Government and Housing, charged with the delivery of water and sanitation services through local authorities. The National Water Supply and Sanitation Council monitors and enforces standards for all water and sanitation schemes.

Within the Ministry of Local Government and Housing, the Department of Housing and Infrastructure Development oversees policy guidance and mobilization of resources for efficient service delivery by public providers. The Ministry has licensed 11 commercial water utilities to provide water and sanitation services in urban and peri-urban areas. Areas not covered by the Ministry and local authorities are either served by independent company schemes—mainly for their employees, although these are sometimes extended to the general community—or by demand-driven community schemes in peri-urban and rural areas. The later usually operate with the expertise of the government Department of Water Affairs, and through district water, sanitation, health and education committees or NGOs, usually with support from international donors.

The main role of the committees is to spearhead community participation in rural water and sanitation delivery, thus facilitating a shift away from centralization. Though ad hoc, they have been formed in most districts and have become the main focal points for the delivery of rural water and sanitation services. Committee members come from sector ministries and NGOs with a critical role in rural water supply and sanitation.

Reliance on ineffective local institutions is the main reason rural areas continue to lag behind.

In many districts, the committees function as a sub-committee of the district development

BOX 7.1

Challenges of the legal framework reduce effectiveness of service delivery institutions

In line with the National Water Policy of 1994, the structural framework for the delivery of services is premised on seven principles: separation of water resources management and executive functions from the supply of water and sanitation; separation of regulatory and executive functions within the water and sanitation sector; devolution of authority to local authorities and private enterprises; achievement of full cost-recovery for water and sanitation services (capital recovery, operation and maintenance) through user charges in the long run; human resources development leading to effective institutions; technology appropriate to local conditions; and Increased government spending on the sector.

The institutions created since 1994 have been largely effective in the delivery of water and sanitation. There are still some areas of concern, however. Water resource management has not been fully separated from water supply functions. Further, the capacities of central organs have been built at the expense of local institutions, which remain financially weak. District committees are able to exert political pressure, but their accountability is low due to the absence of a legal framework. This lack of clarity often leads to power struggles over meagre resources, ill-defined ownership and responsibilities for sustainability.

coordinating committee. The National Water, Sanitation, Health and Education Coordinating and Training Team was established to form and backstop the district water, sanitation, health and education committees, which in turn have established village level institutions. Lacking a legal framework, these groups cannot be held accountable and are therefore financially weak.

Impact of reforms

The main efficiency gains arising from reforms are in the area of commercial water and sanitation delivery. As the regulator, the National Water Supply and Sanitation Council has made good progress in a number of areas, such as developing guidelines in 10 critical facets of the operations of service providers: minimum service levels, business plans, financial projections, investment plans, tariffs, corporate governance, reporting guidelines, water supply for low-income areas, human resource management and licensing. It has also issued 10-year licenses to commercial utilities that provide all information required under the Water Supply and Sanitation Act.

The commercialization of water supply and sanitation has improved service delivery..

The risk of improper use of water as a resource has to some extent been minimized by the activities of the Water Board, which issues water rights to all providers, in as much as the water used comes from surface supplies. The Water Act of 1949 does not require water rights to be issued for water taken from underground. This leaves the Water Board poorly positioned to ensure that the interests of different users are balanced in a manner that enhances development. The Board has been ineffective in the face of increased political pressure. For example, there are certain areas of Lusaka where illegal settlements, poor sanitation and reliance on shallow wells pose serious health hazards from contamination of surface water because water rights are either non-existent or remain ill defined.

The lack of a legal framework on rural water and sanitation implies that specific strategies developed to achieve "…universal access to safe, adequate and reliable water supply and sanitation services" cannot be implemented in a sustainable way. While rural water supply and sanitation programmes may be community based, as required by the strategy, the implementation machinery for investment is not sustainable. Actions that require concerted efforts, such as training, promoting appropriate technology, researching rural water and sanitation, and developing cost-recovery approaches, may not be forthcoming.

Emerging issues

The current Water Act needs updating to improve service delivery.

Reform of the legal and institutional framework has produced some improvements in service delivery, but needs review to take account of emerging issues and persistent weaknesses. The revised National Water Policy of 2010 sought to address some of these issues, but remaining challenges include inadequate implementation of sector plans and strategies, low government funding, unclear institutional responsibilities, weak coordination mechanisms, inadequate baseline information, and insufficient human resource capacities, among other factors hampering service delivery. As a first step, addressing these constraints will require updating the current Water Act.

Unaccounted for water leads to lost revenues that could be used to provide better services.

Budget Performance

From 2006 to 2008, only one percent to four percent of the national budget was allocated to various aspects of the water sector, including water resources management, irrigation, water resources development, and water supply and sanitation. The actual disbursements, were, however even lower. As Table 7.1 shows, from 2006 to 2008,

Investment levels remain lower than the required thresholds.

TABLE 7.1

Budget performance for water and sanitation (ZK billion) 2006-2008

Total for water and sanitation	2006	2007	2008	2009
Fifth National Development Plan	256.5	268	232.5	757
Budgeted	167.32	317.92	370.01	855.25
Released	7.51	24.96	23.89	56.32
Rural water and sanitation				
Fifth National Development Plan	48.9	64.1	55.9	168.9
Budgeted	70.45	86.92	92.96	250.33
Released	2.9	13.14	7.63	23.74
Urban water and sanitation				
Fifth National Development Plan	207.6	203.9	176.6	588.1
Budgeted	96.87	231	277.05	604.92
Released	4.53	11.78	16.26	32.57
National solid waste management				
Fifth National Development Plan	0.3	9.8	5.6	10.10
Budgeted	0.2	10.05	8.23	18.30
Released	0.0	4.56	1.04	5.60

Sources: Ministry of Education 2002 and 2008.

only around nine percent of the total approved budget was actually disbursed. Consequently, most water supply and sanitation programmes could not be implemented as planned. This follows a trend of low investments in the sector since the mid-1980s.

About 90 percent of sector expenditures come through foreign financing. Allocations for water supply and sanitation are made under the loans and investment vote for the Ministry of Local Government and Housing, and are implemented by its Department of Housing and Infrastructure Development.

The overall capacity to plan and implement programmes for water and sanitation is weak. Problems are reported both in the public and private sectors. A recent study on sector capacity (Ministry of Local Government and Housing 2007) observed serious gaps in staff numbers, qualifications and skills at the district level and in commercial utilities. The study concluded that the implementation of national programmes will be very difficult if the Government does not develop and allocate additional human and financial resources for such programmes.

Limited financial and human resources erode the capacity of the sector to deliver services.

Many factors have contributed to the inadequacy of suitably qualified human resources. The public service sector has had to face intense competition from the expanding private sector in the nation and sub-region. Zambia has lost skilled water engineers and hydro-geologists due to uncompetitive conditions of service and poor remuneration. Developing and retaining required skills continues to be a challenge.

TABLE 7.2

Percent of population without access to water and sanitation services

Indicator	1991	1993	1996	1998	2002	2004	2006
Safe water	51	53	53	48	46	43.2	40
Sanitation	26	25	39	36	36	29.8	36.1

Source: UNDP and the Government of the Republic of Zambia 2011

TABLE 7.3

Time to obtain drinking water, round trip, 2008

Indicator	% of the population		
	Urban	Rural	Total
Water on premises	51.9	8.4	23.9
Less than 30 minutes	39.3	60.1	52.7
30 minutes or longer	8.3	30.5	22.6
Don't know/missing	0.5	1.0	0.8
Total	100.0	100.0	100.0

Source: Central Statistical Office et al. 2008.

Sector Performance

Population coverage at the national level

Table 7.2 shows that Zambia has made progress in providing access to safe water. The proportion of the population without sustainable access to an improved water source fell from 51 percent in 1996 to 40 percent in 2006. The proportion of the population without access to an improved sanitation facility, however, increased from 26 percent in 1991 to 36.1 percent in 1996.

The growth in the delivery of water and sanitation services lagged behind the rate of population growth.

Rural areas lagged behind, with 59 percent of the population having no access to safe drinking water. Most rural communities still depend on open rivers and streams and unprotected wells for water. A recent report on urban and peri-urban water and sanitation indicated that 26.4 percent of the people in these areas have no access to safe water (National Water Supply and Sanitation Council 2009/2010). Provincial variations are observed, with Eastern Province having the highest number of people without a sustainable supply of clean water, at 42 percent. Southern and Copperbelt provinces have the lowest portions of people without access.

As can be seen from Table 7.3, a low level of access to safe water means that the time spent collecting it for drinking is a huge drain on productivity and social networks in general. This problem is more severe in rural areas, where only 8.4 percent of the population has access to water on their premises, and 30 percent of people, mostly women, spend more than 30 minutes obtaining water each day. Some groups of society, for example, people living with HIV and AIDS, women with disabilities, etc., may fail to cope with such demands on their time and effort.

BOX 7.2

Commercial service providers

There are currently 11 commercial utilities that deliver water services: the Lusaka Water and Sewerage Company (WSC), the Nkana WSC, the Kafubu WSC, the Mulonga WSC, the Lukanga WSC, the Southern WSC, the Chambeshi WSC, the North Western WSC, the Eastern WSC, the Western WSC and the Luapula WSC.

There are also independent water and sanitation providers, mainly firms providing services to their employees. Although not significant with respect to their share in total coverage, they are the only service providers in some small settlements.

Table 7.4 shows the distribution of the various sources of water, and reveals how the pattern has changed between 1988 and 2008. The emerging picture is that improved water sources from public standpipes have become more prevalent in urban areas, but the situation has barely changed in rural areas. Unprotected dug wells continue to be used in both urban and rural areas.

There are wide variations in the supply of services between rural and urban areas.

Figure 7.1 reveals a growing reliance on the use of pit latrines in both urban and rural areas. A result of this trend, along with the lack of amenities for the safe disposal of garbage, high population density, poor drainage and use of untreated water, has been frequent epidemics of diseases such as cholera.

Effectiveness in urban and peri-urban areas

Within urban areas, commercial utilities (Box 7.2) are the major service providers, and they account for most improvements in the delivery of water. Reported coverage rates for commercial

TABLE 7.4

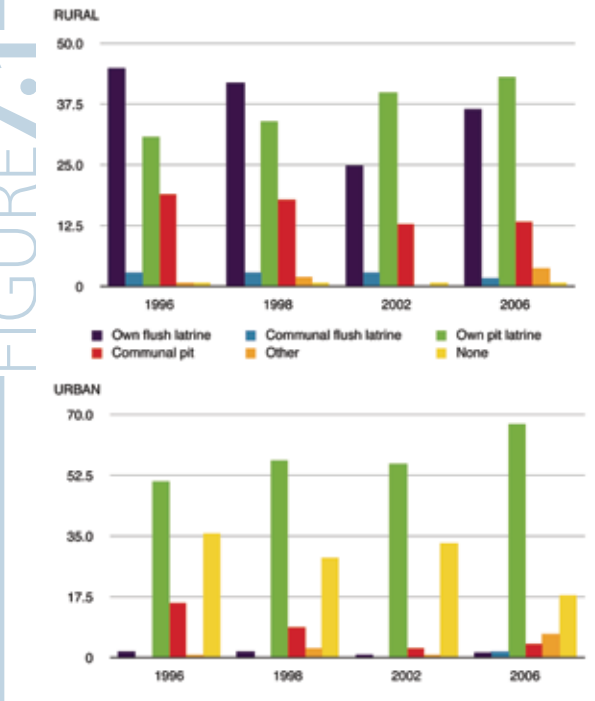
Changes in the types of sources of water by rural and urban areas, 1988-2008

Indicator	Living Conditions and Monitory Survey 1988			Zambia Demographic and Health Survey 2008		
	Urban	Rural	Total	Urban	Rural	Total
Improved source	88.8	36.9	55.5	82.0	19.6	41.8
Piped water into dwelling/yard/plot	41.4	1.4	15.8	42.5	1.3	16.0
Public tap/standpipe	16.6	3.7	39.7	33.8	1.8	13.2
Protected dug well	23.2	31.8	7.7	5.7	16.4	12.6
Non-improved source	11.2	63.1	44.5	14.0	77.7	55.0
Unprotected dug well	….	….	….	13.1	46.9	34.9
Tanker truck/cart with small tank	….	….	….	0.0	0.0	0.0
Surface water	43.3	61.7	10.2	1.0	30.7	20.1
Bottled water, improved source for cooking/washing	….	….	….	0.2	0.0	0.1
Other	….	1.3	0.9	3.8	2.8	3.1
Total	100	100	100	100.0	100.0	100.0

Sources: Central Statistical Office 1988, Central Statistical Office et al. 2008.
Note: …. denotes data not available.

Access to sanitation facilities in urban and rural areas

FIGURE 7.1



Sources: Central Statistical Office 1996, 1998, 2002 and 2006.

utilities and local authorities, however, do not account for low service hours, particularly among the latter, due to rundown infrastructure.

Urban areas are generally located in well-drained areas with deeper water tables. Since the jurisdiction of commercial utilities tends to cut across local government boundaries, cost-recovery and sharing are possible, such as through the exchange of specialized skills among districts. This can allow some economies of scale to pass to consumers through reduced tariffs.

In peri-urban areas, services remain poorly developed. Local authorities are unable to exert any rights over the use of shallow wells and surface water, thus diminishing their role. NGOs such as Care International and World Vision have stepped in to fill the void within community-driven development initiatives, but their efforts are not sustainable. There is still plenty of scope for the utilities to increase their effectiveness, however. As the ensuing discussion will illustrate, coverage rates can be substantially improved by taking a number of steps to improve efficiency.

Table 7.5 shows that only 5.3 million people are able to access water and sanitation through commercial utilities. The best performers exceed 75 percent coverage in Copperbelt, given their inheritance of water structures developed by mining companies. In the middle are companies bunched around the 65 percent mark, led by Lusaka WSC at 70 percent, and flanked by

TABLE 7.5

Water supply and sanitation coverage of the commercial utilities in 2010

	Commercial utility	Water supply coverage (%)	Sanitation coverage (%)	Total population in service area	Number of connections	Number of towns/ centres in service area
1	Lusaka WSC	70.2	19	1,831,408	73,240	4
2	Nkana WSC	87.6	52	685,420	43,805	3
3	Kafubu WSC	86	59	633,656	48,365	3
4	Mulonga WSC	88.5	71	436,249	41,600	3
5	Lukanaga WSC	65.6	27	365,869	14,360	6
6	Southern WSC	89	58	328,882	29,529	17
7	Chambeshi WSC	63.4	32	275,474	12,344	12
8	North Western WSC	68.5	22	222,817	6,882	7
9	Western WSC	58.4	16	217,632	9,903	8
10	Eastern WSC	57.8	22	176,477	9,775	6
11	Luapula WSC	19	0	173,206	3,993	7
	Total 2009/2010		-	5,348,090	293,796	76
	Average 2009/2010	73.9	36.6			
	Average 2008/2009	72.4	34			

Source: National Water Supply and Sanitation Council 2010.

Eastern WSC at 58 percent. Western WSC comes in a close second. The outlier is Luapula, with less than 20 percent coverage; this is also the least urbanized province.

Owing to increased jurisdictions of the commercial utilities, national urban water supply coverage is rising (Table 7.6 and Box 7.3). In 2010, it stood at 73.9 percent, improving by 1.5 percent from the previous year. The corresponding figures for national urban sanitation coverage are 36.6 percent for 2010, up from 34 percent in 2009.

Less than 40 percent of Zambians can access solid waste collection.

Waste generation and disposal by all sectors of the economy is currently in need of better management. Only 10 to 40 percent of urban areas are serviced with solid waste collection. Some identified challenges inhibiting greater coverage are Inadequate funding for capital investments; low technical and managerial capacities in sanitation among service providers; inadequate and ineffective community participation and stakeholder involvement in the design, operation and management of sanitation facilities; a lack of appropriate low-cost, standardized sanitation technologies as alternatives to high-cost technologies; and the proliferation of unplanned and illegal settlements that make the provision of sanitation facilities difficult.

Commercial viability

Table 7.7 shows that less urbanized commercial utilities are less viable operations. Most

In 2010, 7 out of 11 commercial utilities attained the National Water Supply and Sanitation Council's operational and maintenance cost coverage benchmark of 85 percent.

TABLE 7.6

National urban water supply coverage

	2005/2006	2006/2007	2007/2008	2008/2009
Total urban population	4,903,529	5,046,420	5,104,741	5,161,450
Total urban population serviced	3,270,745	3,428,572	3,503,441	3,737,703
National urban water coverage (%)	67	68	69	72
National urban sanitation coverage				34

Sources: National Water Supply and Sanitation Council 2006, 2007, 2008 and 2009.

BOX 7.3

Views of some service providers

Interviews with sector managers indicate that the trend of increasing access to water supply and sanitation will continue. This is likely to be the case especially in rural areas, where greater investments have been made under the National Rural Water Supply and Sanitation Programme and in water resource management.

The formation of commercial water utilities and establishment of a regulatory agency, the National Water Supply and Sanitation Council, have contributed to increasing overall access to water and improvements in service delivery in the urban areas. Extending water supply into peri-urban areas remains a challenge, with most dwellers of unplanned settlements not accessing water supplies from commercial sources.

TABLE 7.7

Production and financial efficiency of commercial utilities in 2009-2010

	Commercial utility	Water production (cubic millimetres)	Average tariff (ZK)	Value of water production (ZK billion)	Total billing (ZK billion)	Unit operation cost (ZK)	Unit cost coverage by average tariff (%)	Operational cost coverage by collection (%)
1	Lusaka WSC	95.23	2080	198.078	127.4	1948	106.8	106
2	Nkana WSC	56.60	1795	101.597	55.7	1417	126.7	92
3	Kafubu WSC	55.88	2442	136.459	52.1	1201	203.3	104
4	Mulonga WSC	58.67	1727	101.323	58.0	1162	148.6	136
5	Lukanaga WSC	21.90	1967	43.077	9.4	972	202.4	71
6	Southern WSC	19.44	2047	39.794	19.2	1469	139.3	106
7	Chambeshi WSC	14.40	2200	31.680	5.0	743	296.1	69
8	North Western WSC	3.57	4086	14.587	8.0	4093	99.8	85
9	Western WSC	7.62	1400	10.668	4.5	1291	108.4	90
10	Eastern WSC	5.17	2359	12.196	6.1	2999	78.7	72
11	Luapula WSC	2.80	1420	3.976	1.5	3504	40.5	21
	TOTAL	338.00		693.435	346.9			

Source: National Water Supply and Sanitation Council 2010.

utilities have yet to achieve commercial viability due to their inability to cover operating costs and the need for significant investments. Only a few commercial utilities generate revenues above operating expenses through water and sewerage services billings. Commercial viability and sustainability is also hampered by low collection efficiencies. In 2010, operational cost coverage by collection varied widely among the commercial utilities, from as low as 21 percent to 106 percent, with only 7 out of 11 commercial utilities attaining the National Water Supply and Sanitation Council's operational and maintenance cost coverage benchmark of 85 percent.

Efficiency

The levels of unaccounted for water remain high. Bringing these levels down to acceptable levels could free up resources that could be used to increase coverage by more than one million customers (World Bank 2009).

High levels of unaccounted for water undermine commercial utilities' revenues and abilities to provide efficient services, among other factors. Unaccounted for water is the measure of water lost in the distribution system. In Zambia, the National Water Supply and Sanitation Council defines it as the difference between the quantity of treated water distributed in the network and the quantity of water billed. It consists of technical losses (leakages) and commercial losses (illegal connections, unbilled customers and wastage on unmetered customers' premises). The Council's benchmark for unaccounted for water is 25 percent. As shown in Table 7.8, in 2010 the levels were at 45 percent on average across the 11 commercial utilities, and the total value of losses amounted to ZK 285 billion, in excess of US $60 million. The commercial utilities in Lusaka and Copperbelt account for more than 80 percent of these lost revenues. The shortfalls mean that investment in rehabilitation and new infrastructure is deferred, and regular operations and maintenance suffer.

Water quality

Water quality compliance among the commercial utilities is generally acceptable, but still leaves room for improvements. For example, low pH values due to contamination of water with heavy metals such as lead, zinc and copper are a major concern. Apart from health implications, the low pH increases corrosion, raises operational and maintenance costs, and accelerates investment requirements. Water quality is further compromised by frequent electricity outages, desolate water network systems that are highly prone to bursts and leakages, deferment of critical maintenance works due to funding constraints,

TABLE 7.8

Lost revenues due to unaccounted for water, 2010

Commercial utility	Metering ratio (%)	Total billing (ZK billion)	Unaccounted for water (%)	Unaccounted for water (ZK Billion)	Value of total billing plus unaccounted for water (ZK Billion)
Lusaka WSC	52	127.4	48	117.7	245.1
Nkana WSC	58	55.7	42	40.3	96.0
Kafubu WSC	45	52.1	45	42.9	95.0
Mulonga WSC	55	58.0	42	41.8	99.8
Lukanaga WSC	76	9.4	48	8.7	18.1
Southern WSC	76	19.2	39	12.3	31.5
Chambeshi WSC	38	5.0	46	4.3	9.3
North Western WSC	100	8.0	34	4.1	12.1
Western WSC	13	4.5	52	4.8	9.3
Eastern WSC	67	6.1	51	6.3	12.4
Luapula WSC	0	1.5	62	2.4	3.9
TOTAL		346.9	-	285.6	632.5
AVERAGE			45		

Source: National Water Supply and Sanitation Council 2010.

and less-than-optimum water quality tests in some commercial utilities.

Effectiveness in rural areas

Community-driven schemes and water supply facilities where individual households are their own providers are the most prevalent routes for delivering water and sanitation in rural areas. Weak local authorities have left a huge gap in the delivery of services, which some local and international NGOs endeavour to cover. They work both through the district water, sanitation, health and education committees, and directly with the communities, using various matching grant schemes with cost-sharing arrangements.

The Department of Water Affairs in the Ministry of Energy and Water Development is involved in constructing boreholes in rural areas. Once developed, the water points are handed over to communities through village water, sanitation, health and education committees, supervised by district development coordinating committees. Given the decline in access indicated in Table 7.4—from 40 percent in 1988 to 20 percent in 2008—this mode of delivery is proving to be too ineffective to enable rural areas to see improved access to water. The alternative of delivering services through cross-subsidization of commercial utilities is quite daunting (see, for example, Box 7.4).

The increase in the level of access to "own pit latrines" and the decline in the number of people with no access (Figure 7.1) attests to the possibility that rural households may be able to play the role of "own provider" as far as sanitation is concerned. The evidence also implies, however, that access to sanitation overall would have been higher if some specific areas were not lagging behind. In particular, Western Province had the highest percentage of households with no toilet facility, at 53.4 percent, followed by Southern Province at 33.2 percent and Eastern Province at 20.1 percent. This situation reflects in part the effects of technological limitations across regions, hence placing a caveat on the "own provider" policy. But it also calls for further investigation to assess the effects of other determinants such as education and culture to explain why these areas lag behind.

Water supply and sanitation and multi-dimensiona; poverty

Inadequate water and sanitation services affect human well-being and put lives at risk, especially among the poor. The National Health Strategic Plan recognizes poor environmental sanitation as a major source of public health problems and epidemics in Zambia, and argues that the effects have been felt in the high incidence of both water and food-borne diseases, especially malaria and diarrhoea (Ministry of Health 2008). The neglect of sanitation in areas with high population densities erodes some of the benefits of increasing access to safe water. For example, "contrary to what would be expected, diarrhoea is more prevalent among children whose households have an improved drinking water source" (Central Statistical Office et al., p. 149). This can be expected to happen when small water improvements take place in unsanitary and impoverished conditions.

BOX 7.4

Low demand leads to underutilization of commercial water facilities

Visits to sites in the urban service area of Lukanga WSC in Serenje District found that some residents complained about the colour of the water, arising from the high iron content in the area. Most households have dug individual wells on their premises. They use water from the local commercial utility mostly for drinking purposes.

In the peri-urban areas of Serenje District, homes lack individual connections and are served by water kiosks. Most households possess individual wells and have dug pit latrines, however, so the kiosks remain underutilized.

As a result, demand for water distributed by the company's network is low relative to the extent of the network. This undermines financial viability and long-term sustainability of services.

As discussed earlier, progress over the past 20 years suggests that water provision is advancing faster than sanitation. This could lead to the erroneous conclusion that only sanitation initiatives are needed to address this gap. The National Health Strategic Plan reports that assessment of water quality is a challenge with limited laboratory facilities. Further equity in access to water is compromised by costs for consumers, who construct unprotected wells with resulting contamination problems. These problems, combined with the proximity to waste in peri-urban and settlement sites, create an environmental hazard.

In urban areas, building latrines is not only challenged by prohibitive costs for the poorest groups, but also the lack of space for infrastructure development, resulting in the joint problem of inadequate water and sanitation for the poorest groups. Providing appropriate water and sanitation technologies for peri-urban areas needs to include addressing the upgrading of settlements.

Slow progress in sanitation reflects the general lack of development in water resources and related infrastructure. Sewerage systems require higher levels of per capita water consumption in order to work properly, but most places in Zambia have over the years witnessed little in terms of water infrastructure development on a scale required to address the problem.

Cross-cutting Issues

Gender

Women traditionally do domestic chores such as cleaning and laundry that involve water. As the principal caregivers to families, women also set household hygiene standards that have an impact on child and family health. Reducing the sheer physical burden of water collection and increasing the amount of time that women spend on themselves and their families improves the household's quality of life.

Inefficient and ineffective service delivery of water supply and sanitation services has contributed to the disempowerment of women and girls through, for instance, longer time spent and distances travelled looking for water and coping with the disease burden. In some places, boys too need to travel longer distance leading animals to water, which lowers school attendance.

HIV and AIDS

Dealing with the impact of HIV and AIDS becomes more difficult without access to adequate water and sanitation services. People living with HIV and AIDS need to maintain good hygiene and nutrition, and particularly benefit from the ready cultivation of vegetables and medicinal plants. Availability of services also lightens the burdens of caregivers.

Disability

Water and sanitation facilities are rarely designed to accommodate the rights and needs of people with disabilities. For services that require a high level of participation from the community in order to be effective, it is important to ensure that organizations from the disability movement are adequately represented. Lack of communication, as well as the weak capacity of the disability movement, means that regular approaches to organizing groups may fail to ensure their inclusion. Much needs to done in sensitizing people and raising awareness on the need to factor disability issues into delivering services.

Governance

Good governance in the water and sanitation sector refers, in general, to the relationships (economic, social and political) between the community receiving the service and service providers, which include government entities, local authorities, commercial utilities and others. It is the process by which stakeholders articulate their interests, their input is absorbed, decisions are taken and implemented, and decision makers are held accountable.

The consequences of poor governance in water and sanitation can be life threatening. In some cases, poor governance, such as through inadequate and insufficiently enforced water quality protection guidelines and monitoring protocols, is a contributing factor to water quality problems. Communities and their elected representatives are now realizing the magnitude of problems like

these. Some issues are clearly technical, but some of the most intractable problems arise from poor governance.

At the level of commercial utilities, adherence to good corporate governance enhances performance. Good governance refers to the sum total of practices that involve adherence to technical standards, observation of best practices, transparency in the utilization of financial and other resources, transparency in decision-making, a predictable information flow and rule-based decisions as opposed to discretionary processes.

To assess adherence to good corporate governance, the National Water Supply and Sanitation Council has developed a framework that encompasses corporate culture, documents, meetings and management tools employed to achieve good governance objectives. Four corporate documents— namely, a strategic plan, an approved budget, an annual report with audited accounts and an investment plan—are required for steering the company in its strategic direction.

The level of attendance at board meetings, the presence of a calendar of meetings, the number of meetings held, the number of meetings planned and total expenditures on board meetings as a percentage of the company's total costs all contribute to board performance and good corporate governance. Also important are sound management practices, such as appropriate job descriptions, a disciplinary code, guidelines on conditions of service and a procurement policy.

Standardizing these and other tools of good corporate governance makes it possible to measure performance across commercial utilities.

Climate change

Events relating to climate change are now more frequent than some 30 or 50 years ago. For example, Zambia has become more prone to droughts over the last 20 years, with the worst affected areas having experienced a 25 percent reduction in annual rainfall. Since 1992, the water tables have not recovered—they are low and dropping, meaning that an increasing number of water points dry up in summer. Rural areas, where streams and small rivers are the lifeblood of the community, can be devastated by the loss of water. Women, the water-carriers, are far more affected than men. They must travel even longer distances to fetch water. This often disrupts school progress for girls, who must spend most of their day collecting water.

Droughts appear not to be the only effects of climate change. Floods too have increased in frequency. In some years, heavy rains and poor drainage systems impact directly on water, sanitation and hygiene. High-density population areas in peri-urban towns are particularly affected. Shallow wells, which are a source of drinking water, become contaminated with dirty running water, mostly from collapsed pit latrines. The consequent rise in the water table due to climate change could worsen the sanitary situation as it becomes difficult to construct new pit latrines. The outbreak of cholera and other diseases may become a perennial occurrence.

Conclusions and Recommendations

Progress has been made in access to water in rural and urban areas over the recent past. Projections suggest this trend will be sustained and improved upon in coming years. Greater investments in infrastructure and the human resources capacities of providers could enable the country to expand coverage and enable access to clean water for the majority of the population.

Zambia is blessed with abundant water resources. Generally, commercial utilities rely on a combination of surface and ground water, with some in Copperbelt towns also drawing on water from mine dewatering operations. It is thus relatively easy to supply urban communities. On the downside, easy access to surface and groundwater has facilitated the proliferation of illegal settlements, which often occupy areas not suitable for human habitation, thus creating a problem for service providers. The provision of services in peri-urban areas quite often needs to proceed in tandem with legalization, resettlement and upgrading of settlements, and even disaster management. By lobbying the central Government, international donors and NGOs,

local communities may succeed in bringing services to areas considered illegal by the local government. This in turn attracts more residents and perpetuates a vicious cycle of poverty.

The enactment of the Water Resources Management Law could be expedited on the wing of the new Water Policy. The policy, legislative and regulatory framework could also be strengthened to increase the commercial sustainability, efficiency and quality of water services.

Sanitation services remain unsatisfactory. The solutions are to be found in increased options for enhanced financing, the search for and diffusion of technologies that are appropriate and cost-effective, and the adoption of approaches that build on the participation of beneficiaries in designing, developing and managing sanitation facilities.

Chapter 8

General Conclusions and Way Forward

There has been significant improvement in the level of service delivery in Zambia over the past 10 years. Particularly worth noting are the increases in access to health and education. Infrastructure has expanded, and essential drugs for immunizations, HIV, malaria and tuberculosis are more available, along with desks and learning materials in schools. Some health and education outcomes have improved: maternal and child mortality have declined; basic primary school enrolment has reached universal coverage; and school completion rates are on the rise. After a period of near stagnation in agriculture, the sector has recently been experiencing positive growth, with high rates in non-traditional exports. Progress was also made in water and sanitation services, with more people gaining access in both urban and rural areas.

The level of service delivery has improved in all four sectors reviewed in this report.

There are still issues requiring attention to consolidate the gains made so far. In education, access beyond primary school is relatively low. An expansion of secondary and tertiary education is critical for a growing economy. In health, increased investments are needed to address the rapid rise in non-communicable diseases as well as the "old diseases," such as malnutrition, diarrhoea and upper respiratory infections. For water and sanitation, relatively low investments over the past three decades have created service delivery gaps that will require extended periods of investments to close. The agriculture sector needs improvements in research, extension, irrigation, livestock and fisheries services, as well as in infrastructure and marketing arrangements to realize its full potential.

There are several examples of the lack of effectiveness and efficiency in service delivery. Challenges stem from the drugs and logistics management system for health, management of the health workforce, urban bias in the provision of education and health services, limited teaching and learning resources in schools, low school completion rates, a fragmented institutional framework for skills training, high levels of unaccounted-for water among the commercial water utilities, low sanitation coverage, fluctuations in agricultural production and market access barriers for small-scale farmers. The conclusion is that most Zambians have not yet fully reaped benefits from efficient and effective service delivery systems. This may be the

Zambians have yet to benefit from efficient and effective service delivery systems.

missing link for sustainable human development.

All sectors have been adversely affected by shortages in human resources and a general lack of motivation to provide required services. This has been reflected in the decline of indicators such as ratios of doctors to the population, pupils to teachers and extension service staff to farmers. Public sector reforms, which were aimed at achieving a lean, well-remunerated and motivated staff, have not had the desired impact; the crisis in human resources has persisted. In the recent past, there have been initiatives to improve staffing. Given the huge backlog, the need is still dire. If this aspect is not addressed urgently, some gains may be eroded.

Human resource constraints affect all the reviewed sectors.

There are some shortfalls in the accountability for results at the local level, where the requisite institutions to enhance accountability are weak. Parent-teacher associations, for example, are unable to hold service providers accountable for the quality of education. Neighbourhood health committees have not necessarily achieved better health care provision. The water watch groups have yet to wield significant influence over the coverage and quality of water and sanitation services. Agricultural cooperatives are still underdeveloped and not able to effectively articulate the needs of farmers. All these examples point to the lack of empowerment among important actors, such as local authorities and civil society groups. In general, poverty coupled with over-centralization of services makes it difficult for poor people to both claim their rights, and hold policy makers and service providers accountable.

All sectors are characterized by weak accountability for results at the local level.

The level of private sector participation in the delivery of agriculture and water and sanitation services has risen in the recent past. Service delivery in education and health services is predominantly Government-led, and the low level of non-state actor participation is a major weakness that the Government could examine. The key understanding should be that while the imperative of having some government participation in service delivery is well established, the Government can also play the role of encouraging the growth of non-state actors with proven capabilities in providing cost-effective services. Outsourcing service provision to these institutions needs to be practised more in all sectors discussed in this report.

The complementary role of non-state actors in service delivery has not been fully harnessed.

Where non-state actors are better placed to provide goods and services, such as in agriculture, persistent public sector participation produces disincentives. Dominance of the public sector in service delivery in this sector means either the service is produced at very high cost, or it does not meet the full expectations of the client population. Attenuating Government involvement in the provision of such services would not only improve effectiveness, but also alleviate fiscal pressures on the national treasury.

In an environment of vast unmet social needs, there are compelling reasons for government financing of services in partnership with the private sector. Cases where the participation of non-state actors has expanded the delivery of services should be supported. The rising number of non-state actors participating in service delivery poses the risk of low standards, however. It is critical to implement monitoring systems to ensure the maintenance of minimum quality standards by both private and public service providers.

The recent international financial and economic crises underscore the vulnerability of developing economies, such as Zambia's, which are dependent on international financial support. Given the high level of dependency on overseas financial assistance, Zambia could seriously consider models for increasing local flexibility and lessening the dependency on aid, especially for key sectors such as education and health.

Heavy dependence on aid for education and health services is a source of concern.

The recorded increase in budget allocations to the service sectors is encouraging, but they should be targeted to programmes likely to generate the greatest impact for the majority of the population. While there are indications of an equity-focused national budget, allocations for the health sector show a preference for tertiary- level care at the expense of lower levels. Allocations to agriculture could be realigned to target broad-

Current budgetary allocations could be more equity-biased.

based poverty reduction programmes, such as irrigation schemes, rather than subsidies that are often not optimally designed and implemented.

Among the cross-cutting issues, progress in addressing issues related to gender as well as people with disabilities, and incorporation of HIV and AIDS in workplace programmes is discernable, but the pace is too slow. Indications are that some of the gains in these areas are under threat owing to the impact of the international financial and economic crises and climate change. Narrowing gaps in poverty depends on a better recognition of human rights and adherence to their implementation.

The main-streaming of cross-cutting issues in the develop-ment process is slow.

General Policy Recommendations

In order to consolidate and improve on the service delivery progress made over the past decade, Zambia needs to strengthen the chain of policy, institutional and regulatory reforms, and undertake significant investments in capacity building (human, infrastructure and equipment), especially at the local level. External funding will continue to play a significant role, but ought not to be the sole factor.

The country needs to sustain the progress made in some key areas of human develop-ment.

Specific attention has to be accorded to: instituting mechanisms that will ensure a continued flow of funds in the medium and long term; systematically broadening sources of funding and expertise, including by tapping local resources; and devising cost-effective service delivery options. These are policy and strategic decisions that have to be addressed with a sense of urgency, followed by an accelerated pace of implementation.

Policy and programmatic decisions have tended to emphasize growth, increased coverage and scale up of interventions. But it is becoming apparent that effectiveness and efficiency, together with quality, have to immediately be placed on the policy agenda to assure meaningful human development results from investments in services.

The policy agenda needs to emphasize the qual-ity dimension in service delivery.

In all four sectors assessed in this report, the policy and institutional environment is not always conducive to enhanced service delivery. Bureaucratic red tape needs to be reduced in favour of timely delivery of services; outdated laws that curtail innovations and options for service delivery in some key areas should be reviewed; and the role of the private sector in providing services, which has hitherto been limited by administrative requirements or a lack of appropriate legislation, must be given space. For the agricultural sector, the functions of the Food Reserve Agency and the Farmer Input Support Programme must be systematically evaluated.

Policy and institutional con-straints in service delivery need to be removed.

The role of non-state actors in dismantling such bottlenecks is crucial. Engagement with the Government in policy dialogue could point to more informed policy and institutional options.

Health workers, teachers, agricultural extension officers and other staff who excel at providing services are often known in various institutions. Superior performance hardly sets them apart from their peers, however; nor does it bring material incentives. Such efforts often go unnoticed, ignored or end up only with verbal acknowledgements. The same is true for isolated institutions or units that offer excellent services.

"Best prac-tices" in service delivery are known and could become a gold standard.

Improving service delivery for human development may require a more systematic approach to learning from good performers. They could be seen as tested, successful pilot practitioners, with good chances of demonstrating a gold standard for service delivery to many others.

Emerging evidence from around the world is that decentralization may hold many advantages, but is not in itself sufficient to bring about changes in quality. Decentralization needs to go hand-in-hand with contracting out services, monitoring and evaluation, incentives for good performance, and greater financial and human resources.

Inadequately skilled human resources impose a serious bottleneck for service delivery that must be addressed in all areas.

All four sectors face critical shortages of skilled staff, compromising the delivery of services and positive impacts on human development. Each sector seems to be responding through

policies and programmes that increase the skilled workforce through enhanced pre-service training and recruitment of new staff; reduce attrition of existing staff; strengthen long-term sector planning for staffing needs and capacities; and match demand with the supply of trained human resources for efficient service delivery.

The potential of non-state actors could be tapped with government oversight.

This approach is logical and valid in ensuring that over time the shortage of staff is alleviated. Concerted attention to this issue masks the fact that overall productivity of existing staff is often low or very low, however. More can be attained in service delivery if current staff was better motivated, the HIV dimension effectively incorporated in workplace programmes, tardiness eliminated and more managerial time allocated towards performance management.

New relationships of accountability could emerge. Policy makers need to hold professional bodies and workers' unions accountable for the actions of their members, and to send correct signals by taking punitive action where required, while empowering entities such as water watch groups and parent-teachers associations to take action to improve quality. Service providers could become more proactive in adhering to standards, and monitoring and evaluating themselves, with support where necessary.

All four sectors exhibit bureaucratic restraint in tapping into the private sector potential for enhanced service delivery. The recent approval of a Public-Private Partnership Policy under the Ministry of Finance and National Planning has provided some space for dialogue in this regard. Deep-rooted suspicions of the private sector, varying priorities and objectives, as well as limited knowledge by the Zambian private sector of government protocols and procedures makes collaboration and coordination sometimes difficult.

The private sector has grown in all four sectors with little government support and facilitation. Indications are that more growth is to be expected over the next decade, and could contribute to enhancing services. New institutions may be needed for holding the private sector accountable to various stakeholders, and enforcing standards to increase quality and efficiency. In areas such as health and education, however, the poor can likely only be reached with appropriate financial inputs from the public sector.

Making services available is no guarantee that they will be used. Human resources gaps require people with high educational skills, for example. But people who are poor may withdraw from schools to cut down on costs. Girls may experience early pregnancies and/or be married off at an early age. Action aimed at stimulating demand at various levels is therefore needed. Girls' schooling could be encouraged both through various forms of financial support, and by emphasizing human rights elements such as stopping gender-based violence in schools, homes and communities, and recognizing the reproductive rights of young persons. The same goes for the rights of pre-school children and other vulnerable groups. Careful consideration should be given to making the best possible use of available resources in terms of meeting competing demands through appropriate targeting.

Acting on the demand side requires a closer attention to human rights.

The global financial and economic crises and climate change bring to the fore the need to make efficient use of all resources, financial or otherwise. Traditional approaches to resources such as energy and water may fail to ensure the delivery of services at the rate and scale required to attain human development goals. Innovation will be necessary, along with new policies and practices. Urban agriculture, for example, can lessen transport costs and bring an end to food insecurity in urban areas.

Innovative service delivery is required to meet the challenges of the global financial and economic crises, and climate change

Action Plan for Improving Service Delivery by Sector

In view of the analysis, conclusions and recommendations in the preceding chapters, the following sets of actions for the Government and its partners could be considered for furthering human development in Zambia.

1. Agriculture

Policy and institutional framework

- Complete the processing of all pieces of legislation that hinder development in the sector.
- Address implementation challenges from the creation of separate ministries to oversee livestock and fisheries, and agriculture and cooperatives.
- Expedite implementation of the Decentralization Policy to foster better coordination between the Ministry of Agriculture and Cooperatives and other line ministries.
-

Budgetary allocations

- Ensure that the budget is restructured to focus on activities that enhance productivity, such as irrigation development.
- Ensure that rural infrastructure, such as roads, are improved to raise private sector participation and increase access to markets.
-

Efficiency of service delivery

- Re-examine the tendency of budgetary allocations to favour the Food Reserve Agency and Fertilizer and Input Support Programme, at the expense of funding for poverty-reduction programmes oriented around issues such as irrigation and livestock development.
- Expedite the implementation of the proposed Voucher Based Inputs Supply System, as this would improve beneficiary farmers' purchasing power, minimize administrative costs and stimulate market competitiveness.

Effectiveness of service delivery

- Support cattle restocking and agriculture extension services through the Ministry of Livestock and Fisheries Development.
- De-link the provision of input support from the formation of farmers' cooperatives.
- Improve coordination among non-state actors providing extension services.
- Ensure that all stakeholders give animal husbandry and fisheries development extension services the same attention as crop extension services.

2. Education

Legislative and institutional framework

- Expedite the implementation of the Decentralization Policy in order to improve local decision- making.
- Call on policy makers to guarantee economic, social and cultural rights in the Constitution, including the right to a free basic education.

Budgetary allocations

- Substantially increase allocations to the education sector;
- Ensure that the inordinate reduction in tertiary level budgets is stemmed to encourage growth in skills development for service delivery.
- Grant tertiary institutions autonomy to charge cost-recovery fees.
- Within the Ministry of Science, Technology and Vocational Training, develop a Skills Training Information Management System that captures national data on the needs of various ministries, NGOs and private sector concerns.

Efficiency of education delivery

- Review the fragmented institutional framework for skills training to improve service delivery.
- Develop inclusion strategies for children with special educational needs, especially at high school level, in line with the

Convention on the Rights of Persons with Disabilities.
- Enhance the continuous professional development of teachers at the upper-basic and high school levels.
- Continue infrastructure development as critical to improving teachers' morale, reducing classroom shortages and avoiding overcrowding.
- Increase and accelerate investments to improve the quality of and access to higher education.
- Make public sector efforts more effective and efficient by carefully developing and effectively implementing a framework for contracting services to non-state actors.

Effectiveness of service delivery

- Increase the recruitment of teachers and availability of instructional materials.
- Extend the duration of the teacher/pupil contact time in grades one to four.
- Encourage local language literacy training.
- Ensure that only trained teachers work with the lower grades.

3. Health

Policy and institutional framework

- Accelerate the development of an overall National Health Services Bill to replace the repealed National Health Services Act, and formulate an overarching National Health Policy.
- Accelerate the approval of all pending policies and legislation.
- Amend existing legislation or bring new legislation into force for the Medical Council and general nursing councils, emphasizing the regulation of public and private health care services; establishment of an independent health care regulatory body that will report directly to Parliament; and creation of a system for re-registration of practitioners focusing on evidence of continuing professional development.

Budgetary allocations

- Progressively increase the percentage of the discretionary budget allocated to health to meet the 15 percent target agreed in the 2001 Abuja Declaration.
- Urgently explore and implement sustainable domestic health care financing options such as Social Health Insurance.

Efficiency of service delivery

- Optimize the allocation of resources across different levels; this can be achieved by developing and implementing objective resource allocation criteria that give more weight to needy areas across all levels of the health system.
- Call on cooperating partners to recommit to using shared processes to support national health plans through predictable arrangements for disbursement of funds, and use of shared mechanisms for managing and accounting for funds, reporting on progress and reviewing performance.
- Build local capacities to handle most specialist treatment and diagnostics requirements.

Effectiveness of service delivery

- Provide a basic health care package at all levels as the foundation of national strategic planning and implementation.
- Explore opportunities for improving the availability and productivity of health workers, especially in rural areas, which may entail a combination of expanding the capacities of training institutions, extending mechanisms for motivating and retaining staff in health facilities, adopting measures to improve the productivity of current workers, and shifting tasks and pursuing innovations in the use of community-based workers.
- Increase the availability of adequate infrastructure, medical equipment and essential drugs at all times.
- Improve patient management, quality assurance and other hospital operational systems.

4. Water and Sanitation

Institutional and legislative framework

- Expedite enactment of legislation on water resource management.
- Update the National Water Supply and Sanitation Policy to capture emerging issues.
- Elaborate legal, regulatory and institutional frameworks in rural areas to ensure better coordination and accountability at local and community levels.

Budgetary allocations

- Increase allocations and effectively disburse funds to the sector, while ensuring that technical, financial management, procurement and accountability capacities are developed, along with procedures for transparency.
- Ensure that civil society participation in tracking resource use at all levels is strengthened.

Efficiency of service delivery

- Develop a human resource development strategy to strengthen pertinent government departments, district councils and commercial utilities, and make the planning function more prominent at the local level.

Effectiveness of service delivery

- Ensure that information management, and monitoring and evaluation functions are harmonized across all data sources—the National Water Supply and Sanitation Council, the Ministry of Local Government and Housing, the Ministry of Energy and Water Development, and civil society organizations.
- Work towards developing alternative water sources where demand has not been met.
- Compile an inventory of success stories about commercial utilities that can be shared and replicated.

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Acronyms

AIDS	Acquired immunodeficiency Syndrome
ART	Anti-retroviral treatment
FAO	Food and Agriculture Organization
GDP	Gross domestic product
GII	Gender Inequality Index
GNI	Gross national income
HDI	Human Development Index
HIPC	Heavily Indebted Poor Countries
HIV	Human immunodeficiency virus
HMIS	Health management information system
IHDI	Inequality-adjusted Human Development Index
IMF	International Monetary Fund
MDGs	Millennium Development Goals
MDR	Multilateral Debt Relief Initiative
MPI	Multidimensional Poverty Index
Mt	Metric tones
NGO	Non-governmental organization
ODA	Official development assistance
PMTCT	Prevention of mother-to-child transmission
PPP	Purchasing power parity
PRSP	Poverty Reduction Strategy Paper
SWAPs	Sector-wide approaches to programming
WHO	World Health Organization
WSC	Water and Sewerage Company
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
VCT	Voluntary counselling and testing

Technical Notes

Technical Note 1
Calculating the Human Development Index

The HDI is a summary measure of human development. It captures average achievements in a country in three basic dimensions: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices measuring achievements in each dimension.

Creating the Dimension Indices

The first step is to create sub-indices for each dimension. Minimum and maximum values, or "goalposts," need to be set to transform the indicators into indices between 0 and 1. Because the geometric mean is used for aggregation, the maximum value does not affect the relative comparison (in percentage terms) between any two countries or periods of time. The maximum values are set to the actual observed maximum values of the indicators from the countries in the time series, that is, 1980 to 2010. The minimum values will affect comparisons, so values that can be appropriately conceived as subsistence values or "natural" zeros are used.

Progress is thus measured against the minimum levels that a society needs to survive over time. The minimum values are set at 20 years for life expectancy, at 0 years for both education variables and at $163 for per capita GNI. The life expectancy minimum is based on long-run historical evidence from Maddison (2010) and Riley (2005)[1]. Societies can subsist without formal education, justifying the education minimum. A basic level of income is necessary to ensure survival: $163 is the lowest value attained by any country in recorded history (in Zimbabwe in 2008), and corresponds to less than 45 cents a day, just over a third of the World Bank's $1.25 a day poverty line.

Goalposts for the HDI in this report

Dimension	Observed maximum	Minimum
Life expectancy	83.2 (Japan,2010)	20.0
Mean years of schooling	13.2 (United States,2000)	0
Expected years of schooling	20.6 (Australia, 2002	0
Combined education index	0.951 (New Zealand, 2010)	0
Per capita income (PPP$)	108,211 (United Arab Emirates, 1980	163 (Zimbabwe,2008)

Having defined the minimum and maximum values, the sub-indices are calculated as follows:

$$Dimension\ index = \frac{actual\ value - minimum\ value}{maximum\ value - minimum\ value} \quad (1)$$

For education, equation 1 is applied to each of the two sub-components, then a geometric mean of the resulting indices is created, and finally, equation 1 is reapplied to the geometric mean of the indices, using 0 as the minimum and the highest geometric mean of the resulting indices for the time period under consideration as the maximum. This is equivalent to applying equation 1 directly to the geometric mean of the two sub-components. Because each dimension index is a proxy for capabilities in the corresponding dimension, the transformation function from income to capabilities is likely to be concave (Anand Sen 2000c). Thus, for income the natural logarithm of the actual minimum and maximum values is used.

Aggregating the Sub-indices to Produce the HDI

The HDI is the geometric mean of the three dimension indices:

$$(I_{Life}^{1/3} . I_{Education}^{1/3} . I_{Income}^{1/3}) \quad (2)$$

i Lower values have occurred during some crisis situations, such as the Rwandan genocide, but were obviously not sustainable.

Expression 2 embodies imperfect substitutability across all HDI dimensions. It thus addresses one of the most serious criticisms of the linear aggregation formula, which allowed for perfect substitution across dimensions. Some substitutability is inherent in the definition of any index that increases with the values of its components.

Example: Zambia

Indicator	Value
Life expectancy at birth (years)	51.3
Mean years of schooling (years)	6.3
Expected years of schooling (years)	7.5
GNI per capita (PPP US$)	1,277.58

Note: Values are rounded.

$$\text{Life expectancy index} = \frac{51.3 - 20}{83.2 - 20} = 0.495$$

$$\text{Mean years of schooling index} = \frac{6.3 - 0}{13.2 - 0} = 0.477$$

$$\text{Expected years of schooling index} = \frac{7.5 - 0}{20.6 - 0} = 0.364$$

$$\text{Education index} = \frac{\sqrt{0.477 \cdot 0.364} - 0}{0.951 - 0} = 0.438$$

$$\text{Income index} = \frac{\ln(1{,}277) - \ln(163)}{\ln(108{,}211) - \ln(163)} = \frac{2.06}{6.5} = 0.317$$

$$\text{HDI} = \sqrt[3]{30.495 \cdot 0.438 \cdot 0.317} = 0.4096$$

Technical Note 2
Calculating the Inequality-adjusted Human Development Index

The IHDI adjusts the HDI for inequality in distribution of each dimension across the population. It is based on a distribution-sensitive class of composite indices proposed by Foster, Lopez-Calva and Szekely (2005), which draws on the Atkinson (1970) family of inequality measures. It is computed as a geometric mean of geometric means, calculated across the population for each dimension separately.

The IHDI accounts for inequalities in HDI dimensions by "discounting" each dimension's average value according to its level of inequality. The IHDI equals the HDI when there is no inequality across people, but is less than the HDI as inequality rises. In this sense, the IHDI is the actual level of human development, accounting for this inequality, while the HDI can be viewed as an index of "potential" human development, or the maximum level of HDI, that could be achieved if there was no inequality. The "loss" in potential human development due to inequality is given by the difference between the HDI and the IHDI, and can be expressed as a percentage.

Data Sources

Since the HDI relies on country-level aggregates such as national accounts for income, the IHDI must draw on alternative sources of data to obtain the distribution of each dimension. The distributions have different units—income and years of schooling are distributed across individuals, while expected length of life is distributed across age intervals. Available distributional data are not necessarily for the same individuals or households. The inequality in distribution of the HDI dimensions is estimated for:

- Life expectancy, which uses data from abridged life tables provided by UNDESA (2009d): This distribution is available across age intervals (0–1, 1–5, 5–10, ..., 85+), with the mortality rates and average age at death specified for each interval.
- Years of schooling and household income (or consumption), which use household survey data harmonized in international databases: Luxembourg Income Study, Eurostat's European Union Survey of Income and Living Conditions, the World Bank's International Income Distribution Database, UNICEF's Multiple Indicators Cluster Survey, the US Agency for International Development's Demographic and Health Survey, WHO's World Health Survey and the United Nations University's World Income Inequality Database.
- The inequality in standard of living dimension, which uses disposable household income per capita, household consumption per capita or income imputed based on an asset index matching methodology (Harttgen and Klasen 2010).

ii The inequality aversion parameter guides the degree to which lower achievements are emphasized and higher achievements are de-emphasized

iii As is estimated from survey data using the survey weights, $A_\varepsilon = 1 - \frac{\bar{Y}^{1-\varepsilon}}{\sum w_i Y_i^{1-\varepsilon}}$, where $\sum w_i = 1$.

For a full account of data sources used for estimating inequality, see Kovacevic (2010a).

Computing the IHDI

There are three steps to computing the IHDI.

Step 1. Measuring inequality in underlying distributions

The IHDI draws on the Atkinson (1970) family of inequality measures, and sets the aversion parameter ϵ equal to 1[ii] . In this case, the inequality measure is A = 1– g/μ, where g is the geometric mean and μ is the arithmetic mean of the distribution.

This can be written:

$$A_x = 1 - \frac{\sqrt[n]{X_1 \ldots X_n}}{X} \quad (1)$$

Where *{X1, … , Xn}* denotes the underlying distribution in the dimensions of interest. Ax is obtained for each variable (life expectancy, years of schooling and disposable income or consumption per capita) using household survey data and the life tables[iii].

The geometric mean in equation 1 does not allow zero values. For mean years of schooling, one year is added to all valid observations to compute the inequality. Income per capita outliers—extremely high incomes as well as negative and zero incomes—are dealt with by truncating the top 0.5 percentile of the distribution to reduce the influence of extremely high incomes, and by replacing the negative and zero incomes with the minimum value of the bottom 0.5 percentile of the distribution of positive incomes.

Step 2. Adjusting the dimension indices for inequality

The mean achievement in a dimension, $\bar{X}$, is adjusted for inequality as follows:

$$\bar{X}^* = \bar{X}(1 - A_x) = \sqrt[n]{X_1 \ldots X_n}$$

Thus X^*, the geometric mean of the distribution, reduces the mean according to the inequality in distribution, emphasising the lower end of the distribution.

The inequality-adjusted dimension indices, I_{Ix}, are obtained from the HDI dimension incides, I_x, by multiplying them by $(1 - A_x)$, where A_x is the corresponding Atkinson measure:

$$I_{I_x} = (1 - A_x) \cdot I_x$$

The inequality-adjustment income index, I^*_{Income}, is based on the unlogged gross national income (GNI) index, I^*_{Income}. This enables the IHDI to account for the full effect of income inequality.

Step 3. Computing the IHDI

The IHDI is the geometric mean of the three dimension indices adjusted for inequality. First, the IHDI that includes the unlogged income index (IHDI*) is calculated:

$$IHDI^* = \sqrt[3]{I_{I\,Life} \cdot I_{I\,Education} \cdot I^*_{I\,Income}}$$

$$= \sqrt[3]{(1-A_{Life}) \cdot I_{Life} \cdot (1-A_{Education}) \cdot I_{Education} \cdot (1-A_{Income}) \cdot I^*_{Income}}$$

The HDI based on the unlogged income index (HDI*) is then calculated. This is the value that IHDI* would take if all achievements were distributed equally:

$$HDI^* = \sqrt[3]{I_{I\,Life} \cdot I_{I\,Education} \cdot I^*_{I\,Income}}$$

The percentage loss to the HDI* due to inequalities in each dimension is calculated as:

$$Loss = 1 - \frac{IHDI^*}{HDI^*} = 1 - \sqrt[3]{(1-A_{Life}).(1-A_{Education}).(1-A_{Income})}$$

Assuming that the percentage loss due to inequality in income distribution is the same for both average income and its logarithm, the IHDI is then calculated as:

$$IHDI = \left(\frac{IHDI^*}{HDI^*}\right).HDI$$

Which is equivalent to:

$$IHDI = \sqrt[3]{(1-A_{Life}) \cdot (1-A_{Education}).(1-A_{Income})} \cdot HDI$$

Notes on Methodology and Limits

The IHDI is based on an index that satisfies subgroup consistency. This ensures that improvements

or deteriorations in distribution of human development within a certain group of society (while human development remains constant in the other groups) will be reflected in changes in the overall measure of human development. This index is also path independent, which means that the order in which data are aggregated across individuals, or groups of individuals, and across dimensions yields the same result—so there is no need to rely on a particular sequence or a single data source. This allows estimation for a large number of countries.

Although the IHDI is about human development losses from inequality, the measurement of inequality in any dimension implicitly conflates inequity and inequality due to chance, choice and circumstances. It does not address the ethical and policy-relevant issues around whether these aspects should be distinguished (see Roemer 1998 and World Bank 2005b for applications in Latin America).

The main disadvantage of the IHDI is that it is not association sensitive, so it does not capture overlapping inequalities. To make the measure association sensitive, all the data for each individual must be available from a single survey source, which is not currently possible.

Example: Zambia

	Indicator	Dimension index	Inequality measure (A1)	Inequality-adjusted index
Life expectancy		0.495		
Mean years of schooling				
Expected years of schooling				
Education index		0.437		
GNI		0.317		

	HDI	IHDI	Percent loss
HDI with unlogged income	*30.495*0.437*0.317*=	*3*=0.389	
HDI	*30.495*0.437*=	0.409	

Technical Note 3: Calculating the Gender Inequality Index

The GII reflects women's disadvantage in three dimensions—reproductive health, empowerment and the labour market—for as many countries as data of reasonable quality allow. The index shows the loss in human development due to inequality between female and male achievements in these dimensions. It ranges from 0, which indicates that women and men fare equally, to 1, which indicates that women fare as poorly as possible in all measured dimensions.

The GII is computed using the association-sensitive inequality measure suggested by Seth (2009). The index is based on the general mean of general means of different orders—the first aggregation is by the geometric mean across dimensions; these means, calculated separately for women and men, are then aggregated using a harmonic mean across genders.

Computing the Gender Inequality Index

There are five steps to computing the GII.

Step 1. Treating zeros and extreme values

The maternal mortality ratio is truncated symmetrically at 10 (minimum) and at 1,000 (maximum). The maximum of 1,000 is based on the normative assumption that countries where the maternal mortality ratio exceeds 1,000 are not different in their ability to create conditions and support for maternal health. Similarly, it is assumed that countries with 1 to 10 deaths per 100,000 births are essentially performing at the same level.

Female parliamentary representation in countries reporting 0 percent is coded as 0.1 percent, because the geometric mean cannot have zero values, and because these countries do have some kind of political influence by women.

Step 2. Aggregating across dimensions within each gender group, using geometric means

Aggregating across dimensions for each gender group by the geometric mean makes the GII association sensitive (see Seth 2009).

For women and girls, the aggregation formula is:

$$G_F = \sqrt[3]{\left(\frac{1}{MMR}\cdot\frac{1}{AFR}\right)^{1/2}\cdot\left(PR_F.SE_F\right)^{1/2}\cdot LFPR_F}$$

and for men and boys the formula is:

$$G_M = \sqrt[3]{1.\left(PR_M\cdot SE_M\right)^{1/2}\cdot LFPR_M}$$

iv Technically, this would be 3.33. Because of the weighting structure, the same households are identified as poor if a cut-off of 3 is used.

Step 3. Aggregating across gender groups, using a harmonic mean

The female and male indices are aggregated by the harmonic mean to create the equally distributed gender index:

$$HARM\,(G_F, G_M) = \left[\frac{(G_F)^{-1} + (G_M)^{-1}}{2}\right]^{-1}$$

Using the harmonic mean of geometric means within groups captures the inequality between women and men, and adjusts for association between dimensions.

Step 4. Calculating the geometric mean of the arithmetic means for each indicator

The reference standard for computing inequality is obtained by aggregating female and male indices using equal weights, thus treating the genders equally, and then aggregating the indices across dimensions:

$$G_{\overline{F,M}} = \sqrt[3]{\overline{Health} \cdot \overline{Empowerment} \cdot \overline{LFPR}}$$

where $\overline{Health} = \left(\sqrt{\frac{1}{MMR} \cdot \frac{1}{AFR}} + 1\right)/2,$

$\overline{Empowerment} = \left(\sqrt{PR_F \cdot SE_F} + \sqrt{PR_M \cdot SE_M}\right)/2$ and

$$\overline{LFPR} = \frac{LFPR_F + LFPR_M}{2}$$

HEALTH should not be interpreted as an average of corresponding female and male indices, but as half the distance from the norms established for the reproductive health indicators—fewer maternal deaths and fewer adolescent pregnancies.

Step 5. Calculating the GII

Comparing the equally distributed gender index to the reference standard yields the GII:

$$1 - \frac{Harm\,(G_F, G_M)}{G_{\overline{F,M}}}$$

Example: Zambia

	Reproduction health		Empowerment		Labour market
	Maternal mortality ratio	Adolescent fertility rate	Parliamentary representation	Attainment of secondary and higher education	Labour market participation
Female					
Male					
(F+M)/2	(+1)/2=				

Technical Note 4 Calculating the Multidimensional Poverty Index

The MPI identifies multiple deprivations at the individual level in health, education and standard of living. It uses microdata from household surveys, and, unlike IHDI, all the indicators needed to construct the measure must come from the same survey.

Each person in a given household is classified as poor or non-poor, depending on the number of deprivations his or her household experiences. These data are then aggregated into the national measure of poverty.

Methodology

Each person is assigned a score according to his or her household's deprivations in each of the 10 component indicators, (d). The maximum score is 10, with each dimension equally weighted, thus the maximum score in each dimension is 3⅓.

The health and education dimensions have two indicators each, so each component is worth 5/3 (or 1.67). The standard of living dimension has six indicators, so each component is worth 5/9 (or 0.56).

The health thresholds are: having at least one household member who is malnourished, and having had one or more children die. The education thresholds are: having no household member who has completed five years of schooling; and having at least one school-age child, up to grade eight, who is not attending school. The standard of living thresholds relate to: not having electricity;

not having access to clean drinking water; not having access to adequate sanitation; using "dirty" cooking fuel (dung, wood or charcoal); having a home with a dirt floor; owning no car, truck or similar motorized vehicle; and owning at most one of these assets: bicycle, motorcycle, radio, refrigerator, telephone or television.

To identify the multidimensionally poor, the deprivation scores for each household are summed to obtain the household deprivation, c. A cut-off of 3, which is the equivalent of one-third of the indicators, is used to distinguish between the poor and non-poor[iv]. If c is 3 or greater, that household (and everyone in it) is multidimensionally poor. Households with a deprivation count between 2 and 3 are vulnerable to or at risk of becoming multidimensionally poor. The MPI value is the product of two measures: the multidimensional headcount ratio and the intensity (or breadth) of poverty. The headcount ratio, H, is the proportion of people who are multidimensionally poor:

$$H=\frac{q}{n}$$

where q is the number of people who are multidimensionally poor and n is the total population.

The intensity of poverty, A, reflects the proportion of the weighted component indicators, d, in which, on average, poor people are deprived. For poor households only, the deprivation scores

Example using hypothetical data

Indicators	Household				
	1	2	3	4	Weights
Household size	4	7	5	4	
Health					
At least one member is malnourished	0	0	1	0	5/3=1.67
One or more children have died	1	1	0	1	5/3=1.67
Education					
No one has completed five years of schooling	0	1	1	1	5/3=1.67
At least one school-age child no enrolled in school	0	1	0	0	5/3=1.67
Living conditions					
No electricity	0	1	1	1	5/9=0.56
No access to clean drinking water	0	0	1	0	5/9=0.56
No access to adequate sanitation	0	1	1	0	5/9=0.56
House has dirt floor	0	0	0	0	5/9=0.56
Household uses dirty cooking fuel (dung)firewood, or charcoal	1	1	1	1	5/9=0.56
Household has no car and owns at most one of: bicycle, motorcycle,radio, refridgerator, telephone or televsion	0	1	0	1	5/9=0.56
Results					
Weighter count of deprivation, c (sum of each deprivation multiplied by its weight	22.2	7.22	3.89	5.00	
Is the household poor (c>3)?	No	Yes	Yes	Yes	

are summed and divided by the total number of indicators, and by the total number of poor persons:

$$A = \frac{\sum_{1}^{q} c}{qd}$$

where c is the total number of weighted deprivations the poor experience and d is the total number of component indicators considered (10 in this case).
Note: 1 indicates deprivation in the indicator; 0 indicates non-deprivation.
Weighted count of deprivations in household 1:

$$\left(1.\frac{5}{3}\right) + \left(1.\frac{5}{9}\right) = 2.22$$

Headcount ratio:

$$(H) = \frac{(7 + 5 + 4)}{(4 + 7 + 5 + 4)} = 0.80$$

(80 percent of people live in poor households)
Intensity of poverty:

$$(A) = \frac{(7.22 \cdot 7) + (3.89 \cdot 5) + (5.00 \cdot 4)}{(7 + 5 + 4) \cdot 10} = 0.56$$

(the average poor person is deprived in 56 percent of the weighted indicators).

$$MPI = H \cdot A = 0.450$$

In sum, the basic intuition is that the MPI represents the share of the population that is multidimensionally poor, adjusted by the intensity of deprivations suffered.

Appendix

APPENDIX TABLE 1 MDG 1 indicators

Indicator	1996	1998	2004	2006	2015 target
Proportion of population living in extreme poverty (%)					
National	53	58	53	51	29
Rural	79	71	53	67	40.5
Urban	44	36	34	20	16

	1992		2002	2007	2015 target
Prevalence of underweight children under five years of age (%)					
National	25.1		28.1	14.6	12.5
Rural	29.0		30.1	15.3	14.5
Urban	20.8		23.4	12.8	10.4

Source: UNDP and the Government of the Republic of Zambia 2011.

APPENDIX TABLE 2 MDG indicators

Indicator	1990	2003	2004	2005	2007	2009	2015 target
Primary school net enrolment ratio (%)							
Total	80	76	85	96	97	102 [1]	
Girls	69	75	85	96	98	104.6	100
Boys	71	71	86	95	96	103.6	
Pupils reaching grade 7 (%)							
Total	64	73	82	82	90.7	91.7	100
Girls	57	66	75	73		87.7	100
Boys	71	80	95	88		98.7	100
Literacy rates: 15-24 year olds (%)							
National	79	75	70	N/A	N/A	N/A	N/A
Female	75	70	66	N/A	N/A	N/A	N/A
Male	79	75	75	N/A	N/A	N/A	N/A

Source: UNDP and the Government of the Republic of Zambia 2011.
N/A = not available.

1 The net enrolment ratio cannot exceed 100 percent. The reasons it does here could be due to under- and overestimates on the Census, increased birth rates, lower death rates, migration, etc.. To make a reliable estimate of the ratio, accurate estimates of enrolment by age are needed. There is consensus that currently available demographic data in Zambia generally underestimate the total number of school-age children.

APPENDIX TABLE 3 MDG indicators

Indicator	1990	2005	2006	2007	2008	2009	2015 target
Ratio of girls to boys in:							
Primary education	0.9	0.94	0.95	0.95	0.95	0.96	1
Secondary education	0.92	0.86	0.86	0.89	0.87	0.88	
Tertiary education		0.74	0.72	0.77	0.74		
Ratio of literate females to males		0.8	0.8	0.8	0.8	0.8	
Share of women in wage employment	0.39	0.34					
Proportion of seats held by women in national parliament (%)	6**	12	14	14	14	14	30***

Source: UNDP and the Government of the Republic of Zambia 2011.

APPENDIX TABLE 4 MDG 4 indicators

Indicator	1992	1996	2002	2007	2015 target
Under-five mortality rate	191	197	168	119	63
Infant mortality rate	107	109	95	70	30
One-year olds immunized against measles (%)	77	86	84	84.9	100

Source: UNDP and the Government of the Republic of Zambia 2011.

APPENDIX TABLE 5 MDG 5 indicators

Indicator	1996	2002	2007	2015 target	Decline in number of deaths to attain target
Maternal mortality rate per 100,000 live births	649	729	591	162	429
Births attended by skilled personnel	51	43.4	43	-	

Source: UNDP and the Government of the Republic of Zambia 2011.

APPENDIX TABLE 6 MDG 6 indicators

Indicator	1992	1996	2002	2007	2015 target	
Zambia Demographic and Health Survey HIV prevalence rate (%)	-	-	16	14.3	16 or less	
Contraceptive prevalence rate (%)	11.6	19.2	24.6	-	-	
Zambia Demographic and Health Survey HIV prevalence rate, male and female	-	-	16	-	16	
Epidemiological sentinel surveillance trends of HIV infection among antenatal clinics	-	-	19	-	19	
	1990	2002	2006	2007	2008	2015 target
New malaria cases per 1,000	255	377	412	358	252	255
Malaria fatality rate per 1,000	11	48	39	38	44	11
Households with insecticide-treated nets	-	13.6	-	53.3		

Source: UNDP and the Government of the Republic of Zambia 2011.

APPENDIX TABLE 7 MDG 7 indicators

Indicators	1990	1996	2001	2003	2004	2005	2010
Land covered by forests (%)	59.8	59.1	59.6	45	-	56.4	38.5
Land protected to maintain biological diversity	38.8	39.2	39.6	39.6	39.6	41.5	31
Energy use (metric ton oil equivalent) per US $1 GDP (PPP)	-	-	-	-	-	-	-
Carbon dioxide emissions per capita	0.3	0.2	-	-			
Consumption of ozone-depleting chlorofluorocarbons (ozone depletion potential tonnes)	-	95.57	45.1	44.5	43	-	-
Population using solid fuels (%)	89	85	80	85	83.8	80	88
	1996	1998	2004	2006	2015*		
Proportion of population without access to an improved water source (%)	53	48	43.2	40	25.5		
Proportion of population without access to improved sanitation (%)	39	36	29.8	36.1	13		

Source: UNDP and the Government of the Republic of Zambia 2011.
**2015 MDG Target*

APPENDIX TABLE 8 GII Indices for Zambia and Provinces, 2008

Geometric mean		Harm (Gf, Gm)	Distance from the norms			Gfm	GII
Gf	Gm		Health	Empowerment	LFPR		
0.075	0.774	0.136	0.502	0.352	0.800	0.521	0.739
0.068	0.689	0.124	0.501	0.262	0.790	0.470	0.775
0.101	0.701	0.177	0.503	0.396	0.640	0.503	0.680
0.082	0.657	0.146	0.502	0.252	0.905	0.485	0.744
0.075	0.666	0.135	0.501	0.242	0.910	0.480	0.763
0.114	0.709	0.196	0.503	0.452	0.665	0.533	0.648
0.068	0.679	0.124	0.502	0.229	0.895	0.468	0.781
0.074	0.654	0.134	0.501	0.242	0.880	0.475	0.889
0.065	0.716	0.120	0.501	0.274	0.825	0.484	0.788
0.071	0.639	0.128	0.501	0.227	0.875	0.463	0.762

Gf = geometric mean, female Gm=geometric mean, male	LFPR =Labour market participation rate
Harm (Gf, Gm) = harmonic mean (female and male indices aggregated by the harmonic mean to create the equally distributed gender index)	Gf,m = geometric mean of female and male indices GII = Gender Inequality Index

Source: Central Statistical Office 2006, 2007,2008.

APPENDIX TABLE 9 Indicators and the calculation of MPI, 2006

	A	B	C	D	E	F	G
	Population	Poor population	Intensity of poverty numerator (A)	Intensity of poverty numerator	Head count	Intensity of poverty	MPI
Zambia	11,668,493	6,807,166	29,960,777	68,071,660	0.583	0.440	0.257
Central	1,221,667	774,638	3,377,685	7,746,378	0.634	0.436	0.276
Copperbelt	1,782,799	701,110	2,895,881	7,011,100	0.393	0.413	0.162
Eastern	1,604,257	1,106,681	4,983,627	11,066,814	0.690	0.450	0.311
Luapula	929,310	716,724	3,376,679	7,167,242	0.771	0.471	0.363
Lusaka	1,598,124	476,290	1,884,382	4,762,903	0.298	0.396	0.118
Northern	1,482,946	1,041,197	4,711,266	10,411,975	0.702	0.452	0.318
North Western	709,095	508,630	2,248,935	5,086,301	0.717	0.442	0.317
Southern	1,453,112	872,161	3,760,865	8,721,611	0.600	0.431	0.259
Western	887,183	609,734	2,721,458	6,097,337	0.687	0.446	0.307

Headcount: the proportion of the population who are multidimensionally poor. 58.3% of people live in poor households.

Intensity: reflects the proportion of the weighted component indicators, in which, on average, poor people are deprived. The average poor person is deprived in 44% of the weighted indicators.

MPI: share of the population that is multidimensionally poor, adjusted by the intensity of the deprivations suffered

Source: Central Statistical Office 2006.

APPENDIX TABLE 10 Indicators and the calculation of MPI, 2004

	A	B	C	D	E	F	G
	Population	Poor population	Intensity of poverty numerator (A)	Intensity of poverty denominator	Head count	Intensity of poverty	MPI
Zambia	10,357,040	5,836,083	24,994,859	58,360,827	0.563	0.43	0.241
Central	1,138,752	703,434	2,980,493	7,034,338	0.618	0.42	0.262
Copperbelt	1,634,630	573,541	2,328,611	5,735,415	0.351	0.41	0.142
Eastern	1,457,040	950,595	4,271,708	9,505,954	0.652	0.45	0.293
Luapula	865,449	623,116	2,743,905	6,231,162	0.720	0.44	0.317
Lusaka	1,201,146	371,329	1,449,346	3,713,288	0.309	0.39	0.121
Northern	1,387,126	902,421	3,837,843	9,024,210	0.651	0.43	0.277
North Western	647,926	416,515	1,760,015	4,165,148	0.643	0.42	0.272
Southern	1,338,882	816,342	3,521,145	8,163,416	0.610	0.43	0.263
Western	686,089	478,790	2,101,793	4,787,895	0.698	0.44	0.306

Intensity: reflects the proportion of the weighted component indicators, in which, on average, poor people are deprived.

The average poor person is deprived in 43% of the weighted indicators.

MPI: share of the population that is multidimensionally poor, adjusted by the intensity of the deprivations suffered

Source: Central Statistical Office 2004.

APPENDIX TABLE 11 Trends in sector employment levels, 2004-2008

Sector	2004	2005	2006	2007	2008
Agriculture	65,136	65,496	66,597	59,030	60,265
Mining and quarrying	46,078	32,611	32,611	48,318	47,910
Manufacturing	45,340	40,151	53,021	53,152	45,287
Electricity, gas and water	12,346	6,309	12,873	9,895	11,054
Construction	5,787	7,953	11,589	14,731	14,075
Trade	44,460	67,521	57,451	63,901	87,293
Transport	26,510	20,679	19,487	21,646	28,098
Business and financial services	31,880	22,313	45,193	51,202	52,550
Personal and community services	138,691	173,811	177,013	178,741	197,804
Total	416,228	436,336	475,835	500,616	544,339

Source: Central Statistical Office 2010.

APPENDIX TABLE 12 Selected competitiveness indicators for Zambia, 2006 -2010

Indicator	2008-2009	2009-2010
Basic requirements	121	117
Institutions	67	61
Infrastructure	116	111
Macroeconomic stability	102	104
Health and primary education	128	126
Efficiency enhancers	100	98
Higher education and training	118	114
Goods market efficiency	78	70
Labour market efficiency	102	107
Financial market sophistication	55	41
Technological readiness	106	109
Market size	112	111

Notes: for the attributes, the higher the rank, the less competitive the country.
Source: World Economic Forum 2009 and 2010.

APPENDIX TABLE 13 Area Planted and Crop Production, 2006/2007 to 2007/2008

Crop	Area planted (hectare)			Yield (metric tonnes/hectare)			Crop production		
	2006/2007	2007/2008	Change (%)	2006/2007	2007/2008	Change (%)	2006/2007	2007/2008	Change (%)
Maize	872,812	928,224	6	1.57	1.31	-17	1,336,158	1,211,566	-9
Sorghum	31,596	24,349	-23	0.40	0.41	2	12,773	9,992	-22
Rice	20,067	25,349	26	0.91	0.98	8	18,317	24,023	31
Millet	56,817	45,508	-20	0.38	0.74	95	21,707	33,943	56
Sunflower	28,829	32,491	13	0.31	0.38	23	8,953	12,662	41
Groundnuts	147,320	5,425	-96	0.37	0.48	30	55,215	1,329	-98
Soybeans	38,947	32,404	-17	1.42	1.75	23	55,194	56,839	3
Seed cotton	89,312	111,307	25	0.61	0.64	5	54,886	71,820	31
Mixed beans	55,532	59,588	7	0.43	0.70	63	24,164	44,463	84
Barley tobacco	10,000	1,815	-82	1.00	2.56	256	10,000	4,659	-53
Virginia tobacco	8,265	9,299	13	1.88	1.82	-3	15,562	17,005	9
Wheat	19,188	19,480	2	6.42	9.80	53	115,843	113,242	-2

Source: Ministry of Finance and National Planning 2009.

APPENDIX TABLE 14 Budget Allocations and Releases for Core Fifth National Development Plan Programmes, 2006-2008 (ZMK billion)

Programmes as indicated in Fifth National Development Plan	Total 2006-2008				
	Plan projection	Budget	Releases	% releases plan	% releases/ budget
Irrigation development	177.4	43.8	23.5	20.0	53.6
Agriculture infrastructure and land development	151.9	27.4	15.2	10.0	55.4
Livestock development	194.4	46.3	49.5	25.5	106.9
Agricultural services and technical development	198.3	75.7	55.2	27.8	72.9
Fisheries development	56.3	38.0	30.5	54.1	80.2
Policy formulation and coordination	67.6	49.8	43.0	63.6	86.3
Agricultural marketing, trade and agribusiness	85.2	16.0	11.5	13.5	71.9
Cooperative development	12.6	21.2	13.1	103.8	61.6
Human resources and management development	31.0	65.5	63.0	203.1	96.1
Fertilizer Support Programme	497.6	523.8	664.0	133.8	127.2
Strategic Food Reserves	130.0	335.5	400.2	307.9	119.3
TOTAL	1,542.3	1,243.1	1,370.6	88.9	110.3

Source: Ministry of Finance and National Planning 2009.

APPENDIX TABLE 15 Agriculture Expenditures by Category

Category	2010		2009		2008		2007		2006	
	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%
Personal emoluments	154.6	12.7	131.8	10.4	118.1	13.2	107.6	9.9	84	12.9
Recurrent departmental charges	131.5	10.8	160.1	12.7	100.1	11.2	148.5	13.7	39	6.0
Grants and other payments	5.5	0.5	3.5	0.3	4.1	0.5	4.0	0.4	6	0.9
Poverty reduction programmes	551.5	45.3	575.1	45.5	282.9	31.7	393.3	36.2	269	41.4
Capital expenditures	40.9	3.4	42.8	3.4	3.5	0.4	3.3	0.3	1	0.1
Agricultural shows	2.5	0.2	2.8	0.2	0.6	0.1	1.7	0.2	2	0.3
Agricultural development programmes	247.0	20.3	158.3	12.5	277.3	31.0	360.6	33.2	210	32.3
Allocations to other ministries	221	6.9	188.7	14.9	95.3	10.7	67.4	6.2	39	6
Total	1,354.68.1	100	1263.18.3	100	893.16	100	1086.59	1086.59	6506	100

Category	2010		2009		2008		2007		2006	
	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%	ZK (billion)	%
Irrigation support	0.45	0.1	6.0	1.0	5.8	2.0	9.2	2.4	2.0	0.7
Commercialization of farm blocks	0.0	0.0	0.0	0.0	6.4	2.2	10.1	2.6	6.0	2.2
Animal disease control	13.5	2.5	24.0	4.2	9.7	3.3	6.5	1.6	4.0	1.5
Livestock development	2.0	0.4	3.2	0.6	1.8	0.6	3.4	0.9	0.0	0.0
Fertilizer Support Programme	430.0	78.0	435.0	75.6	185.0	62.2	150.3	38.2	199.0	74.0
Strategic Food Reserves	100.0	18.1	100.0	17.4	80.0	26.9	205.0	52.1	50.0	18.6
Cooperative education and training	0.0	0.0	0.1	0.0	0.5	0.2	2.6	0.7	1.0	0.3
Others	5.1	0.9	0.1	0.0	7.9	2.7	6.2	0.7	6.0	2.2
Total	551.5	100	575.1	100	282.9	100	393.3	100	269.0	100

Source: Bwalya 2010.

APPENDIX TABLE 16 Trends in the Budget and Fertilizer Allocations, and Expected Production, 2002/2003 to 2009/2010

Season	Budgeted(ZK billion)	Fertilizer amount (metric tonnes)	Number of farmers	Expected prodution (metric tonnes)
2002/2003	100	48,000	120,000	360,000
2003/2004	114.5	60,000	150,000	450,000
2004/2005	112.5	50,000	125,000	375,000
2005/2006	140	50,000	125,000	375,000
2006/2007	252	84,000	210,000	630,000
2007/2008	150	50,000	125,000	375,000
2009/2010	492	80,000	200,000	600,000
Total	1,361.1	422,000	1,505,000	3,135,000

Source: Ministry of Agriculture and Cooperatives 2009.

APPENDIX TABLE 17 Dropout Rate for Grades 1-7 by Province, 2008

Province	Dropout rate (%)			Change in dropout rate	
	2008	2005	2002	2002-2008	2005-2008
Central	2.6	2.17	2.5	4	20
Copperbelt	1.49	1.82	7.9	-81	-18
Eastern	2.95	2.8	4.7	-37	5
Luapula	3.37	3.51	0.3	1,023	-4
Lusaka	1.79	1.22	3.6	-50	47
North Western	3.81	3.27	2.9	31	17
Northern	3.62	3.09	0.7	417	17
Southern	2.26	1.74	6.9	-67	30
Western	3.46	2.83	1.5	131	22
National	2.65	2.36	4.4	-40	12

Source: Ministry of Education 2005 and 2008.

APPENDIX TABLE 18 Teacher-Pupil Ratio by Grade and Province, 2005-2008

	Grades 1-4*		Grades 5-7		Grades 1-7		Grades 8-9		Grades 1-9		Grades 10-12	
	2005	2008	2005	2008	2005	2008	2005	2008	2005	2008	2005	2008
Central	70	71	34	36	50	31	31	31	47	17	24	17
Copperbelt	84	61	41	32	61	31	32	31	56	21	20	21
Eastern	61	73	32	35	44	30	29	30	42	18	19	18
Luapula	79	86	40	39	57	38	33	38	54	20	20	20
Lusaka	88	59	41	32	64	28	32	28	60	17	22	17
North Western	104	74	46	36	74	35	40	35	70	20	23	20
Northern	91	91	39	41	64	42	34	42	60	18	22	18
Southern	84	69	34	35	57	32	31	32	53	19	23	19
Western	81	74	34	31	56	31	33	31	52	18	25	18
Average	81	72	37	35	57	51	32	32	53	48	22	19

Source: Ministry of Education 2005 and 2008.

APPENDIX TABLE 19 Examination Pass Rates in Grade 9 by Gender and Province, 2005 and 2008

Province	2005 male		2008 male		2005 female		2008 female		2005		2008	
	Number	%	Number	%	Number	%	Number	%	Total	%	Total	%
Northern	4,933	50.7	6,703	52.08	2,613	41.1	3,316	37.7	7,546	46.9	10,071	46.46
Luapula	3,533	63.8	4,838	56.87	1,855	54.3	2,485	43.5	5,388	60.2	7,380	51.88
Southern	7,547	60.5	8,407	53.81	5,659	53.4	5,999	45.2	13,206	57.2	14,460	50.03
Eastern	5,137	58.9	5,967	54.89	2,725	45.9	3,117	38.3	7,862	53.6	9,139	48.09
Copperbelt	11,154	53.7	12,851	50.52	10,249	47.3	11,350	41.8	21,403	50.4	24,252	46.13
North Western	3,712	71.1	3,873	52.67	2,306	65.9	2,405	47.9	6,018	69.0	6,331	51.14
Central	5,762	59.8	7,119	56.65	4,237	50.5	5,349	47.8	9,999	55.5	12,525	52.70
Western	3,273	64.1	3,554	51.62	2,361	61.2	2,412	45.2	5,634	62.9	6,018	49.24
Lusaka	9,995	61.4	11,485	54.03	8,629	52.8	9,568	43.3	18,624	57.1	21,053	48.55
National	55,046	58.9	64,797	53.39	40,634	50.7	46,001	43.1	95,680	55.1	110,851	48.60
Change over previous year		17.7		-5.5		13.2		-7.6		15.8		-6.5

Source: Examination Council of Zambia.
** Examination pass rates relate to the number of certificates issued.*

APPENDIX TABLE 20 Changes in Staffing Levels between 2005 and 2009

Type of worker	Staff in posts 2005	Staff in posts 2009	Recommended establishment	Staff increases 2005-2009	Absolute changes 2005-2009 (%)	Staffing variance 2009	Gap (%)
Clinical officers	1,161	1,376	4,000	215	19	(2,624)	(66)
Dentistry	56	241	633	185	330	(392)	(62)
Doctors	646	801	2,300	155	24	(1,499)	(65)
Nutrition	65	112	200	47	72	(88)	(44)
Laboratory sciences	417	526	1,560	109	26	(1,034)	(66)
Pharmacy	108	306	347	198	183	(41)	(12)
Physiotherapy	86	191	300	105	122	(109)	(36)
Radiography	142	226	233	84	59	(7)	(3)
Midwife	2,273	2,374	5,600	101	4	(3,226)	(58)
Nurses	6,096	7,123	16,732	1,027	17	(9,609)	(57)
Environmental health	803	1,110	1,640	307	38	(530)	(32)
Other health workers	320	773	5,815	453	142	(5,042)	(87)
Total clinical and other health workers	12,173	15,159	39,360	2,986	25	(24,201)	(61)
Non-health staff	11,003	12,365	12,054	1,362	12	311	3
Overall total	23,176	27,524	51,414	4,348	19	(23,890)	(46)

Source: Ministry of Health 2010.

APPENDIX TABLE 21 Clinical Health Workers per 1,000 People by Province, December 2008

Province	Medical doctors	Clinical officers	Midwives	Nurses	Total clinical health workers	2008 projected population by province	Clinical workers per 1,000 population
Central	55	125	402	290	872	1,301,776	0.67
Copperbelt	170	190	2,011	550	2,921	1,980,824	1.47
Eastern	36	136	627	201	1,000	1,684,910	0.59
Luapula	29	59	342	74	504	997,579	0.51
Lusaka	367	245	1,451	500	2,563	1,697,730	1.51
Northern	25	102	414	177	718	1,577,310	0.46
North Western	24	45	315	58	442	756,261	0.58
Southern	56	180	737	450	1,423	1,545,880	0.92
Western	33	79	392	100	604	937,419	0.64
Zambia	795	1,161	6,691	2,400	11,047	12,479,689	0.89

Source: Ministry of Health 2008.

APPENDIX TABLE 22 Distribution of Health Workers by Size of Hospital, Type and Ownership, 2008

Facility type			Government	Private	Mission	Total	Ownership by facility type (%)	
							Government	Private and mission
Tertiary/specialist hospitals			6	0	0	6	100	0
Secondary hospitals			13	5	3	21	62	38
Primary health care facilities	Level 1 hospitals		39	4	29	72	54	46
	Health centres	Urban	206	53	6	265	78	22
		Rural	930	22	77	1,027	90	10
	Health posts		161	8	2	171	94	6
TOTAL			1,355	92	117	1,564	87	13

Source: Ministry of Health 2008d.

APPENDIX TABLE 23 Total Number of Health Facilities by Population Size of Service Users, 2008

Province	Total number of health facilities	2008 projected population by province	Population per health facility
Lusaka	106	1,697,730	16,016
Luapula	136	997,579	7,335
North Western	154	756,261	4,911
Central	154	1,301,776	8,453
Western	161	937,419	5,822
Northern	193	1,577,310	8,173
Eastern	195	1,684,910	8,641
Copperbelt	229	1,980,824	8,650
Southern	236	1,545,880	6,550
Zambia	1,564	12,479,689	7,979

Source: Ministry of Health 2005a.

APPENDIX TABLE 24 Performance Indicators: Unaccounted for Water and Operation and Maintenance Cost Coverage by Collection, 2006/2007 to 2009/2010

	Unaccounted for water (%)				Operation and maintenance cost coverage by collection (%)			
Commercial utility	2006/2007	2007/2008	2008/2009	2009/2010	2006/2007	2007/2008	2008/2009	2009/2010
Lusaka WSC	55	51	50	48	78	102	111	106
Nkana WSC	37	35	40	42	77	103	105	92
Kafubu WSC	57	58	48	45	74	114	128	104
Mulonga WSC	59	56	42	42	60	94	111	136
Lukanaga WSC	-	61	58	48	-	62	49	71
Southern WSC	55	43	40	39	83	93	104	106
Chambeshi WSC	60	54	53	46	38	69	60	69
North Western WSC	40	36	33	34	55	90	77	85
Western WSC	40	47	42	52	70	86	78	90
Eastern WSC	26	31	30	-	91	114	82	-
Luapula WSC	-	-	-	51	-	-	-	72
Lusaka WSC	-	-	-	62	-	-	-	21
Average	48	47	45	44	77	102	109	106

Source: National Water Supply and Sanitation Council 2007, 2008, 2009 and 2010.

APPENDIX TABLE 25 Costs of Operation: Urban Water Supply and Sanitation, 2008 - 2010

Commercial utility	Personnel costs(ZK millions)			Chemical costs(ZK millions)			Energy costs(ZK millions)			Other costs(ZK millions)			TOTAL COST(ZK million)		
	2008/2009	2009/2010	% Δ	2008/2009	2009/2010	% Δ	2008/2009	2009/2010	% Δ	2008/2009	2009/2010	% Δ	08/09	09/10	% Δ
Lusaka WSC	46,946	47,149	0.4	2,331	2,085	-11	14,892	18,848	27	19,547	28,302	45	83,716	96,384	15
Nkana WSC	20,908	22,890	9.5	3,464	3,951	14	6,399	9,598	50	14,623	10,034	-31	45,394	46,473	2
Kafubu WSC	19,587	20,552	4.9	1,201	1,532	28	4,441	9,187	107	27,516	5,467	-80	52,745	36,738	-30
Mulonga WSC	16,169	17,217	6.5	3,279	3,076	-6	6,226	7,480	20	9,901	11,898	20	35,576	39,671	12
Lukanaga WSC	3,832	6,033	57.4	561	521	-7	1,816	2,305	27	1,861	2,207	19	8,070	11,066	37
Southern WSC	7,382	9,371	26.9	933	1,105	18	1,948	2,859	47	4,005	4,127	3	14,269	17,463	22
Chambeshi WSC	2,353	2,751	16.9	97	134	38	715	945	32	1,368	1,938	42	4,533	5,768	27
North Western WSC	3,750	5,778	54.1	107	120	12	399	379	-5	2,357	3,424	45	6,614	9,700	47
Western WSC	2,132	2,696	26.5	50	82	64	366	440	20	1,171	1,519	30	3,719	4,737	27
Eastern WSC	3,272	4,553	39.1	177	335	89	370	866	134	1,484	1,925	30	5,303	7,678	45
Luapula WSC	-	2,210	-	-	102	-	-	306	-	-	1,096	-	-	3,714	-
TOTAL	126,331	141,200		12,200	13,043		37,572	53,213		83,833	71,937		259,939	279,392	

Source: National Water Supply and Sanitation Council 2009 and 2010.

ZAMBIA HUMAN DEVELOPMENT REPORT 2011
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