Government Gazette

REPUBLIC OF SOUTH AFRICA

Vol. 470 Pretoria 26 August 2004 **No. 26734**

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GENERAL NOTICE

NOTICE 1922 OF 2004

CORRECTION NOTICE

Notice 1869 of 2004, published on page 3 of *Government Gazette* No. 26734 of 26 August 2004, is hereby substituted with the following:

White Paper on e-Education

Transforming Learning and Teaching through Information and Communication Technologies (ICTs)

Printed by and obtainable from the Government Printer, Bosman Street, Private Bag X85, Pretoria, 0001
Publications: Tel: (012) 334-4508, 334-4509, 334-4510
Advertisements: Tel: (012) 334-4673, 334-4674, 334-4504
Subscriptions: Tel: (012) 334-4735, 334-4736, 334-4737
Cape Town Branch: Tel: (021) 465-7531

Gedruk deur en verkrygbaar by die Staatsdrukker, Bosmanstraat, Privaatsak X85, Pretoria, 0001
Publikasies: Tel: (012) 334-4508, 334-4509, 334-4510
Advertensies: Tel: (012) 334-4673, 334-4674, 334-4504
Subskripsies: Tel: (012) 334-4735, 334-4736, 334-4737
Kaapstad-tak: Tel: (021) 465-7531

Department of Education
September 2003

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Design, layout and printing done by Formeset Printers, Cape

Acronyms

CD-ROM Compact Disc - Read-only Memory
CT Communication Technology
e-START e-School Technology Assessment Readiness and Targets
FET Further Education and Training
GET General Education and Training
ICTs Information and Communication Technologies
ISAD Information Society and Development
ISDN Integrated Services Digital Network
ISETT SETA
ISP Internet Service Provider
IT Information Technology
ITAC Information Technology Acquisition Centre
LAN Local Area Network
NEPAD New Partnership for Africa's Development
NGO Non-governmental Organisation
PIAC Presidential International Advisory Council
NQF National Qualifications Framework
PNC Presidential National Commission
POP Point of Presence
SETA Sector Education and Training Authority
SITA State Information Technology Agency
SMMEs Small, Medium and Micro Enterprises
SPPP SITA Procurement Policy and Procedures [document]
WAN Wide Area Network

Foreword by the Minister of Education

Information and communication technologies (ICTs) are central to the changes taking place throughout the world. Digital media has revolutionised the information society and advances in ICTs have dramatically changed the learning and teaching process. This has opened up new learning opportunities and provided access to educational resources well beyond those traditionally available.

The provision of a telecommunication infrastructure available for learning and teaching is gradually increasing, and many schools are exploiting the benefits of ICTs to enhance the quality of teaching and learning.

The introduction of ICTs to our schools is creating new ways for students and teachers to engage in information selection, gathering, sorting and analysis. In addition, ICTs have the potential to enhance the management and administrative capacity of schools. This White Paper sets out Government's response to a new information and communication technology environment in education.

We want to ensure that every school has access to a wide choice of diverse, high-quality communication services which will benefit all learners and local communities. The services provided by the initiative will enhance lifelong learning and provide unlimited opportunities for personal growth and development to all.

The challenge of providing modern technologies to schools in order to enhance the quality of learning and teaching will require a significant investment. Given the magnitude of the task ahead, and in the true spirit of *Tirisano*, the public and private sectors will have to join hands to ensure that our children receive high-quality learning and teaching. This White Paper represents a new framework for the collaboration of Government and the private sector in the provision of ICTs in education. Through this initiative, we hope that we will be able to turn our schools into centres of quality learning and teaching for the twenty-first century.

We hope this White Paper will enable the education sector and all our partners to ensure optimal availability and use of ICTs in education, in a manner that will create better access to quality education for all, and bridge the digital divide, both within our country, and between our country and other parts of the world.

Naledi Pandor

MS GNM Pandor, MP
Minister of Education

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Chapter One: Introduction

The use of ICTs in society and education

1.1 A global revolution is currently taking place in education and training. It is driven by the changing nature of work, the realities of the information age, new global partnerships and an awareness of the need for equal distribution of educational opportunities.

1.2 Education systems have an obligation to deliver on public expectations of quality education for economic growth and social development. However, in the context of developing countries, quality improvement and the enhancement of excellence must take into consideration the need for increased access, equity and redress. These efforts are, in most instances, undermined by factors such as fiscal constraints, spatial barriers and other capacity-related limitations to delivery. As demonstrated in various contexts, information and communication technologies (ICTs) have the potential and capacity to overcome most of these barriers.

1.3 The expansion of ICTs is driving significant changes in many aspects of human endeavour throughout the world. At both micro and national levels, ICTs have increased the effectiveness and reach of development interventions, enhanced good governance, and lowered the cost of delivering basic social services.

1.4 As in other spheres of social and economic development, ICTs have the potential to improve the quality of education and training. It is for these reasons that Government has been quick to seize the opportunity presented by the practical benefits of ICTs to support teaching and learning in the twenty-first century.

1.5 The ICT revolution has had an impact on curriculum development and delivery and continues to pose new challenges for education and training systems around the world. These challenges can be summarised into three broad areas, namely:

- participation in the information society;
- impact of ICTs on access, cost effectiveness and quality of education; and
- integration of ICTs into the learning and teaching process.

The digital divide

1.6 These challenges present themselves within the context of globalisation and polarisation. They occur in a world experiencing increasing disparities between the rich and poor, among and within nations. The use of ICTs in Africa recorded a 20% increase in 2002, mostly due to increased usage in urban areas and countries with a higher GDP per capita. However, while 72.7% of Americans currently use the Internet, only 6.4% of South Africans have access to and use the Internet.

1.7 The digital divide is not only about connectivity and infrastructure disparities, it is also about:

- local content development in terms of the number and quality of local websites, local language content and the use of local online content by key sectors;
- collective knowledge generation;
- building a domestic knowledge economy and promoting online transactional capabilities for the consumer, business, and government sectors;
- developing the capacity of the workforce by improving Internet access and educational offerings in schools and colleges, creating digital libraries for universities, promoting professional training institutes, and stimulating the economy to absorb people with a variety of ICT skills;
- overcoming cultural inhibitions and insecurities about developing competence for surviving the breakneck speed of the Internet age and creating a risk-taking culture;
- co-operation and collaboration between different sectors and also within the private sector;
- creating open investment climates for the incubation, launch, acceleration and initial-public-offering phases of ICT-related SMMEs; and
- ICTs as a core feature of innovation and competitiveness.

1.8 The digital divide however, does not only present barriers to educational developments, but can also be regarded as an opportunity to take best practices to the rest of the world and make it applicable in the best possible ways for our people.

ICTs for development in Africa

1.9 Africa is a developing continent. The lack of developed infrastructure for information and communication technologies is widening the gap between Africa and the developed world.

1.10 In response to this under-development, Africa has adopted a renewal framework, the New Partnership for Africa's Development (NEPAD), which identifies ICTs as central in the struggle to reduce poverty on the continent. ICTs provide hope for overcoming barriers of social and geographical isolation, increase access to information and education, and enable the poor to participate in the making of decisions that have an impact on their lives.

1.11 Within education and training specifically, NEPAD recognises the pivotal role of ICTs in the establishment of regional distance learning and health education programmes to improve the situation in the health and education sectors. In order to realise the benefits of ICTs, Africa must develop and produce a pool of ICT-proficient youth and students, from which the country can draw trainee ICT engineers, programmers and software developers. In pursuit of this objective, a network of training and research institutions that build high-level personal knowledge must be established and existing projects to connect institutions and youth centres must be accelerated.

Government's responses to the digital divide

1.12 If South Africans are to participate in the knowledge economy, every effort must be made to prevent social exclusion. President Thabo Mbeki has underscored the importance of ICTs for social and economic development at numerous South African and international fora. "We must continue the fight for liberation against poverty, against under-development, against marginalisation" and "... information and communication technology ... is a critically important tool in that struggle" (Imbizo for African Youth, 2001).

1.13 In 2001 the Presidential National Commission on Information Society and Development (PNC on ISAD), consisting of representatives from the public and private sectors, was established. The Commission advises Government on the optimal use of ICTs to address South Africa's development challenges and enhance South Africa's global competitiveness.

1.14 At the same time, a Presidential International Advisory Council on Information Society and Development (PIAC on ISAD) was established. The Council consists of chief executive officers from major international corporations and experts active in the field of information and communication technologies. The role of the Advisory Council is to advise Government on addressing the digital divide. At its second meeting in September 2002, the Advisory Council identified three focus areas for developing ICTs:

- education;
- health; and
- small, medium and micro enterprises (SMMEs).

1.15 Through the Department of Communications, the Electronic Communications and Transactions Act (2002) leads all ICT initiatives in South Africa. It calls for the development of a five-year national e-strategy that aims to enable and facilitate electronic transactions in the public interest, including in the education sector.

1.16 Other enabling legislative and policy frameworks have been provided by various government departments in support of integrating ICTs into teaching and learning.

1.17 The challenge is to roll out ICT infrastructure that is specifically suited to Africa. Through appropriate technologies, it is hoped that South Africa will leapfrog into the new century, bypassing the unnecessary adoption cycle, and implement a solution that works now, and has the capacity to handle future developments.

1.18 Three critical elements will determine ICT's future as an effective tool for social and economic development. The first is cost. Any solution that South Africa adopts has to be cost-effective if we are to meet our developmental demands and reach the most remote parts of our country. Second is the question of sustainability. It is no use having state-of-the-art technology unless it can be sustained. Third is the efficient utilisation of ICTs. Deployment of ICTs does not

guarantee their efficient utilisation. Capacity building and effective support mechanisms must accompany deployment.

1.19 Despite the difficulties that constrain the integration of ICTs into management, teaching and learning, the Ministry is determined to direct the implementation of a progressive programme for change.

It is to this end that the Department of Education will invest in national initiatives to increase access, boost the capacity of managers, teachers and learners, and provide electronic resources of the highest quality. African Governmentsshould not just note the importance the Importance of e-Education, But should Play a visible and active role throughout the life-span of this project.

The current profile and distribution of ICTs in schools

1.20 Compiling an ICT profile for South African schools presents a challenge. Statistics are influenced by various factors, including the rapid redundancy rate, the level of usage and the sharing of ICT resources.

1.21 Provinces are at different levels of ICT integration in education. Significant progress has been made with provincial implementation mainly in the Western Cape (Khanya); Gauteng (Gauteng OnLine) and Northern Cape (Connectivity Project).

1.22 Over the last five years, Government, the private sector, parastatals, and nongovernmental organisations have responded positively to the challenge of bridging the digital divide. Efforts include, amongst others, the following:

ICT Professional Development

- SCOPE (Finnish Development Support), SchoolNet SA and the South African Institute for Distance Education have developed 11 Teacher Development Modules for introducing ICTs into schools;
- SchoolNet SA provides online, mentor-based in-service training for teachers on introducing ICTs into the curriculum and management; and
- INTEL "Teach to the Future" Teacher Development Programme provides teacher training in ICT integration into teaching and learning.

Electronic Content Resources

- Mindset develops content resources and makes it available via satellite television,
- Internet multimedia and print supplements; and
- An Educational Portal initiated by the Department of Education provides digital content resources.

Infrastructure and Connectivity

- The Telecommunications Act 103 of 1996 and amended in 2001, called for the development of an Educational Network and the implementation of an e-rate (a discounted connectivity rate) for GET and FET institutions;
- Microsoft has donated software and provides teacher development and support;
- The Digital Partnership Programme provides 188 000 refurbished computers and 20 000 laptops;
- SENTEC is obliged to provide 500 schools with computer labs and teacher development, through licensing obligations;
- The 1800 MHz/3G Frequency Spectrum available to mobile operators obliges them to provide universal services to schools;
- Telkom Foundation has established Supercentres in more than 1 300 schools, providing computers, software applications, Internet connection, monthly subscription and a rent-free telephone line; and
- Telkom Foundation, together with Telkom's strategic partner Thintana, has committed over R200m to support education and training in the areas of ICT, mathematics and science.

1.23 Whilst such initiatives may be dispersed and unco-ordinated, they represent an important base from which we can learn and on which to build.

1.24 Disparities reflected in South African society also find expression in ICT integration into education. Although the number of schools with computers for teaching and learning increased from 12.3% in 1999 to 26.5% in 2002, there are still more than 19 000 schools without computers for teaching and learning.

1.25 Based on data from the Education Management Information System (Department of Education, Pretoria) and information received from provinces, Table 1 reflects the distribution of ICTs in schools across all provinces.

Table 1: Schools with computers, by province (2002)

Provinces	Schools with computers	Schools with computers for teaching and learning
Eastern Cape	8.8%	4.5%
Free State	25.6%	12.6%
Gauteng	88.5%	45.4%
KwaZulu-Natal	16.6%	10.4%
Mpumalanga	22.9%	12.4%
Northern Cape	76.3%	43.3%
Limpopo	13.3%	4.9%
North West	30.5%	22.9%
Western Cape	82.4%	56.8%
National	**39.2%**	**26.5%**

1.26 Analysis of the data reveals that the growth rate of schools that acquired computers between 2000 and 2002 averages 59% and was higher among secondary schools than primary schools. If the same growth rate is maintained over the next two years, only 9 278 schools will have computers by the end of 2004.

1.27 Despite some extreme variations, schools in Gauteng, Northern Cape and Western Cape have, on average, a better ICT infrastructure than schools in Eastern Cape and Limpopo. Schools in Free State, KwaZulu-Natal, Mpumalanga and North West hold a middle position.

1.28 E-mail facilities are beginning to be used more extensively in many schools as a management and administrative resource, and also in some cases, as a teaching and learning resource.

1.29 Internet access is becoming more common, but the use of the Internet for teaching and learning purposes is very limited, due to high connectivity and telecommunication costs, lack of local content and examples, and inadequate technical and pedagogical support at local level.

1.30 In both primary and secondary schools, the teaching of basic computer principles and word processing skills forms the most important component in the teaching of computer literacy. Limited integration into teaching and learning is also evident.

1.31 Beyond the issue of access, there is a gap in the ability of learners and teachers to use these technologies effectively, to access high-quality and diverse content, to create content of their own, and to communicate, collaborate and integrate ICTs into teaching and learning. The professional development of teachers in these areas must go hand in hand with increased access to ICT resources for teaching and learning.

1.32 The present situation, as illustrated above, cannot be maintained if South Africa is to address the digital divide. Like most parts of the world, the South African education and training system has to respond to the pressures and challenges posed by the information revolution. It is for this reason that Government has expressed a strong commitment to the use of ICTs in education.

1.33 Mention should be made of a number of challenges that need to be overcome before ICTcan be introduced system wide and an in institutions – e.g. functionality of schools)