Towards a Sustainable Development View of Local Content using ICTs in South Africa

A Key Priority in the National Information Society Strategy

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Abstract

South Africa (SA) has a history of strong commitment to sustainable development. It is a signatory to the major international agreements such as *Agenda 21* and the *Johannesburg Declaration on Sustainable Development*, and has entrenched the attendant themes and goals into its own policy frameworks. It is also home to an emerging information society (IS), and already there are a number of information and communication technology (ICT) policies in place to improve the penetration of ICTs in the country. As part of the drive to successfully build an IS in SA, the government is currently working on a national *Information Society and Development Plan and Implementation Strategy*.

The intersections of sustainable development and the IS are clear, hence the prevalence of references to each other in many policies and laws. A strong area of convergence is local content—the locally-owned or adapted knowledge of a community—which is shown by the paper to be essential for integrated sustainable development, as well as being a key priority in the national IS strategy. By exploring the links between sustainable development and the IS, and describing projects that create and disseminate local content with the support of ICTs in this area of convergence, the paper proposes the need for a broader definition of local content in the IS strategy, one that is framed within sustainable development principles rather than the current context of arts, culture and heritage. This move towards a sustainable development view of local content supports a further recommendation made by the paper, which is that government should portray ICTs not as an end unto themselves, but rather as powerful new tools that can be used to support SA's existing efforts towards sustainably meeting its development goals.

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The national and provincial governments have recognized the strategic importance of ICTs and the ICT sector in "enhancing the country's competitiveness and meeting development challenges"

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1
Introduction

Since the first democratic elections in 1994, the South African government has passed many laws and policies designed to achieve sustainable development. South Africa hosted the World Summit on Sustainable Development (WSSD) in 2002 and is a signatory to key international agreements. While there is no holistic national sustainable development policy in place, the government is working towards developing one as a way to integrate the various sectoral sustainable development efforts and policies (Zuma 2004).

Technology has long been a crucial element in measuring and achieving sustainable development. From satellite imagery, environmental information systems and, today, the use of mobile phones to share health information, there has been a key dependence on ICTs in the creation, dissemination and consumption of relevant, local information. But "even after the first United Nations (UN) World Summit on the Information Society (WSIS) in Geneva 2003, the relationship between issues of the global information systems and of sustainable development is not being discussed adequately. It seems that the interdisciplinary and international research in this field is just beginning" (Hilty, Seifert and Treiber 2005). Thus there is a need to integrate these fields and focus on their areas of convergence. Currently, sustainable development policy and IS policy are developing along separate tracks in the North, but in South Africa there is now a window of opportunity to link and integrate these realms to achieve better policy coherence.

Since 1996, the now President Thabo Mbeki has voiced his belief in the importance of ICTs in helping SA to meet its development challenges. In response to the emerging global knowledge economy, at his behest, the Department of Communications is currently drafting the country's first national Information Society and Development Plan and Implementation Strategy (hereafter referred to as the "national IS strategy") to create a clear vision for the building of an ICT-enabled IS within SA. The national IS strategy certainly recognizes that an aspect of poverty is "deprivation in knowledge and communication" (UNDP 1997), and that "with ICTs at their disposal, poor and isolated communities will in principle be able to gain rapid access to information on, for instance, education, health, business and democracy" (Boldt 1997 in Sundén and Wicander 2003).

ICTs are tools that augment the ability to codify information as well as enable the wide dissemination thereof, both locally and globally (NACI 2004). Because developed countries are more ICT-enabled than developing countries, they have published much more of their "local content," resulting in the danger that until developing countries produce more of their own local content, "easier access to globalized knowledge is fast turning us [developing countries] into 'consumers' of distant and potentially irrelevant information … that may undermine or overwhelm local cultural heritage and economic livelihoods" (Ballantyne 2002). There is a strong call from governments and international development agencies

for more content from developing countries in local languages, about local and global issues, and expressing local viewpoints.

The national IS strategy has made local content with the support of ICTs a key priority area. The strategy is still a work in progress, but so far its focus has been very much on arts, culture and heritage-based local content. While this is an extremely important focus area for SA, given that the Apartheid regime ridiculed and dismissed the local knowledge and practices of indigenous people, it is not consistent with the tradition of a holistic, developmental approach underpinning many policy frameworks in the country. If this tradition is followed, then the focus should be broader. The paper thus suggests that a more cross-cutting description of local content be adopted, one which accommodates the sectors of sustainable development, such as the environment, health and education as well as the arts, culture, heritage and indigenous knowledge (IK). By positioning the IS strategy within the broader sustainable development principles of SA, and basing it on the international agreements to which SA is a signatory, the government can leverage the efforts of the last 10 years to advance the development of an integrated IS, while simultaneously using new technologies to meet existing sustainable development goals.

1.1   Roadmap of this paper

The first part of this paper sets the context with key definitions, an introduction to SA, a discussion of the history of sustainable development in SA and its prevalence in various laws and policies, and an examination of the emerging IS. This includes ICT policy, the penetration of ICTs and a discussion of the forthcoming national IS strategy.

The issue of local content is then explored, including its definition and importance globally and locally, its current prevalence in SA, and the reasons for associating it with arts, culture and heritage.

Projects of three organizations that use ICTs to create and disseminate local content are described as examples of initiatives that support sustainable development principles and goals.

The conclusion offers recommendations on how local content using ICTs should be positioned in the national IS strategy.

1.2   Research approach

The aim of this paper is to explore the influence of sustainable development on the positioning of local content with the support of ICTs in a South African IS strategy context. The research involved an extensive literature survey and workshops in Cape Town (May 31, 2005) and Johannesburg (June 24, 2005) with participants from government, civil society and academia. The following organizations were represented at the workshops: Cape Peninsula University of Technology; Presidential National Commission (PNC) on Information Society

and Development (Department of Communications); Centre for e-Innovation and Department of Environmental Affairs and Development Planning (both Provincial Government of the Western Cape); Empowerment for African Sustainable Development; Environmental Justice Network Forum; Open Knowledge Network; and Bridges.org. Probably the attendant with the most power to influence the national IS strategy was Ntombi Masakazi, who heads up the Local Content unit in the PNC.

The key points raised in the workshops are integrated in the paper, but can be summarized as follows: the agreement that technology is crucial to sustainable development; local information is fundamental to many sustainable development activities, such as monitoring and raising awareness; local content is pervasive in many sectors of sustainable development; it is difficult to define "local content"; techno-optimism, which holds that technology alone is the solution to many developmental problems, is common in IS policies and strategies; and the national IS strategy should focus on creating an enabling environment for the organic development of an IS in South Africa.

This paper was written at a time when the PNC was drafting the national IS strategy. The author was able to contribute to the process through a formal agreement with the PNC to share information and resources.

The scope of this paper makes it impossible to fully examine the convergence of two very broad fields, i.e., sustainable development and the IS.

Therefore, the research focuses at the effect of sustainable development on IS in SA, and not the other way around.

It must be stressed that many of the topics and definitions used here are the focus of critiques, e.g., the concept of the digital divide, the many views of exactly what sustainable development is, and the role of WSIS and the accuracy of statements made in its Geneva texts. It is not within the scope of this paper to discuss these differing arguments, but rather to take a face-value approach in the name of piecing together—and exploring the convergence of—a number of issues and actors in the sustainable development, IS and local content space.

Lastly, the topic of local content with the support of ICTs is a complex one, located within many broader online and offline issues. While it is also not within the scope of this paper to delve into the broader context, its existence is acknowledged. Examples of relevant issues include: ownership of content; freedom of expression; privacy; regulatory issues surrounding content, particularly on issues of child pornography, and hate and violent speech; Internet service providers' liability; setting of local content standards and quotas; etc.

2
Setting the Context

2.1 Definitions

2.1.1 Information and communications technology

Information and Communications Technology is an umbrella term that includes computer hardware and software; digital broadcast and telecommunications technologies as well as electronic information repositories such as the World Wide Web or those found on CD-ROMs (Selwyn 2002). It represents a broad and continually evolving range of elements that further includes television (TV), radio, mobile phones, and the policies and laws that govern these media and devices.

2.1.2. Information society

Information and communication technologies are the tools that underpin the emerging "information society." While no universally accepted definition for IS exists, it can be described as a society in which "the creation, distribution, and manipulation of information has become the most significant economic and cultural activity. An IS may be contrasted with societies in which the economic underpinning is primarily Industrial or Agrarian" (TechTarget 1999). Information exchange between people and through networks of people has always taken place. But the ICT-enablement of information exchange has radically changed the magnitude of this exchange, and thus factors such as timeliness of information and information dissemination patterns have become more important than ever.

2.1.3. Local content

One definition of local content is "the expression of the locally owned and adapted knowledge of a community—where the community is defined by its location, culture, language, or area of interest" (Ballantyne 2002).

2.1.4. Sustainable development

The definition of sustainable development used in this paper, taken from SA's *National Environmental Management Act* (No. 107 of 1998), is "the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations." It thus draws together sociologists, economists and environmentalists, working together to foster social cohesion, protect the environment and stimulate appropriate economic activities. It is an integrated and holistic (not primarily environmental) approach that draws on the cumulative agreements and commitments of Agenda 21, the Millennium Development Goals and WSSD, among others.

3
Introduction to South Africa

South Africa is a country that exists both in the developed and developing world. On the one hand, it is the economic powerhouse of Africa; on the other, it is beset by developmental challenges such as unemployment, poverty and severe inequalities, largely along the lines of race—a legacy of Apartheid—and location. Urban centres are home to some educated and technologically sophisticated groups, while many rural areas lack access to even the most basic facilities, like water and electricity.

Since 1994, the state has "set out to dismantle Apartheid social relations and create a democratic society based on equity, non-racialism and non-sexism" (GCIS 2005). The government, made up of national, provincial and local levels, has made major strides, but the enormous developmental challenges have also kept many South Africans in dire circumstances.

The 2001 census (Stats SA 2003) revealed that of a population of 44 million (79 per cent of which were Black), 53 per cent were under the age of 25; 33 per cent were aged 20 and older with no schooling or only primary school education; and 30 per cent were unemployed. Thirty per cent of households had no electricity and one in every seven households did not have access to a toilet facility.

While there was an average of only one per cent per capita growth since 1994—"a mediocre performance" (GCIS 2005)—by 2004, SA had achieved the best level of macro-economic stability in 40 years. Inflation fell from over 15 per cent in the early 1990s to four per cent in 2004. Unfortunately, a stable economy has not led to an adequate and much-needed increase in jobs. Since 1995, the number of jobs has grown by 20 per cent, but the economically active population has grown by double that figure (GCIS 2005). Black women still bear the brunt of workplace inequality, on all levels: only three per cent of Black women are directors of public companies (GCIS 2005). Black women also form a large part of the "Second Economy," which is mainly informal, marginalized and unskilled. This is in contrast to the emergent "First Economy," made up of advanced, skilled and globally competitive people who largely work in the business and financial services sectors.

South Africa has 11 official languages, English being only the sixth most spoken home language (Stats SA 2003). Zulu is more than twice as prevalent as English, despite the latter being recognized as the language of commerce and science.

The *South Africa Yearbook 2004/2005* (GCIS 2005) also revealed that the urban rural divide is prevalent across the board: just over half (52 per cent) of rural households had electricity in 2001, compared with 80 per cent of urban households. Limpopo, a rural province where 60 per cent of households were using wood as the main source of energy for cooking, was the worst performing province in terms of education with exactly one-third of its population aged 20

and above having no formal education whatsoever. Despite these statistics, national literacy was at 89 per cent in 2001 and, today, tertiary institutions are producing a much more racially mixed group of graduates. However, unemployment is a problem even for the educated: "the percentage of unemployed graduates of tertiary institutions grew from six per cent in 1995 to 15 per cent in 2002" (GCIS 2005).

Despite the impressive achievements of the democratically-elected government, the *South Africa Human Development Report 2003* (UNDP) revealed that just under half of the population (49 per cent) lived below the official South African poverty line (ZAR354.00/month or approximately US$54/month per adult). Chronic income and wealth inequality—which continue to exhibit strong racial and spatial biases—was reflected in the high Gini coefficient of 0.635 in 2001.

4
Sustainable Development and South Africa

4.1 South Africa's international commitment to sustainable development

"The concept of sustainable development is now widely accepted in planning and development arenas both internationally and in South Africa" (O'Riordan *et al.* 2000; Sowman 2002; Scott *et al.* 2001; all cited in DEAT 2002). How did SA arrive at this point?

The world first started to publicly acknowledge and discuss the impact of social and economic development on the environment at the UN Conference on the Human Environment held in Stockholm in 1972. By 1987, the term sustainable development was introduced as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). The focus was on development that did not unnecessarily have a negative impact on the environment, peoples' health, etc. This was further explored in the 1992 UN Conference on the Environment and Development in Rio de Janeiro (the "Rio Earth Summit"), out of which came Agenda 21, a proposal to achieve sustainable development on a global scale. As a UN member nation, SA signed this proposal and thereby also undertook to localize its efforts through Local Agenda 21 (LA21) programs. LA21 is the process used by participating countries to incorporate sustainable development into local-level planning and implementation activities; it has been adopted by many local authorities in SA (DEAT 2002).

In September 2000, SA signed the *Millennium Declaration* pledging to meet the Millennium Development Goals (MDGs) by 2015. The key objectives of the goals included eradicating poverty; promoting human dignity; and achieving peace, democracy and environmental sustainability. The Department of Foreign Affairs is the official overseer of the MDG process in SA; the lead agency that reports the information required to measure progress is Statistics South Africa (Stats SA).

South Africa's greatest involvement in the global sustainable development community was when it hosted the WSSD in Johannesburg in 2002. Naturally it is a signatory to the Johannesburg Declaration on Sustainable Development and *Plan of Implementation*. WSSD turned the UN Millennium Declaration into a concrete set of programs; its implementation plan includes, among other things, programs to sustainably deliver water, energy, healthcare, agricultural development, a better environment for the world's poor, and targets for the reduction of poverty and protection of the environment. It built upon the progress of previous UN summits, offered an integrated and holistic view of development that went beyond a primary focus on the environment, sought to use modern technology to bring about development, and, on a social level, put the spotlight on the most marginalized sectors of society, including women, the youth, indigenous people and people with disabilities.

In 2004, the Johannesburg +2 Sustainable Development Conference was held in Johannesburg, the first two-year cycle follow-up to the WSSD.

In addition to the aforementioned conferences and summits, SA is also signatory to a number of multilateral environmental agreements, namely the UN Framework Convention on Climate Change, the UN Convention on Biological Diversity and the UN Convention to Combat Desertification. These all place monitoring and reporting obligations on the country. SA is a member of the African Union (launched in 2002), which aims to, among other things, "promote sustainable development at economic, social and cultural levels" (GCIS 2005).

4.2 Sustainable development in South Africa

In 1994, the first democratically elected government initiated the Reconstruction and Development Programme (RDP) as a socio-economic policy framework, looking to, among other things, create a "prosperous society, having embarked upon a sustainable and environmentally-friendly growth and development path" (GCIS 2005). Although now superseded by other policies, the RDP underpinned and framed the government's social and economic development programs for a number of years. The African National Congress (ANC), SA's ruling party, has acknowledged that "Agenda 21 served to encourage and inspire our own democratic movement in SA to draft the RDP" and that, therefore, "many of the policies and programs that we have put in place since 1994 are directly inspired by the outcomes of the Rio Earth Summit" (ANC 2002).

Underpinning these principles is the *Constitution of the Republic of South Africa* (Act 108 of 1996), which states that:

- "Everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations."
- "Everyone has the right to health care services; sufficient food and water; social security"; to "enjoy their culture, practise their religion and use their language"; and to "basic education, including adult basic education."
- "Every person has the right of access to all information held by the state or any of its organs in any sphere of government in so far as that information is required for the exercise or protection of any of their rights."
- "Transparency must be fostered by providing the public with timely, accessible and accurate information."
- "Public administration must be accountable."
- "People's needs must be responded to, and the public must be encouraged to participate in policy-making."

South Africa's national governance and policy framework to promote sustainable development can be introduced as follows (DEADP 2005):

The Bill of Rights, the National Environmental Management Act, the Local Government Municipal Systems Act, the Biodiversity Act, the National Government's draft Medium Term Strategic Framework, the Extended Public Works Programme, the National Skills Development Strategy, and the various relevant sector policies that are specifically aimed at poverty eradication with special reference to job creation, housing and infrastructure provision, health, welfare and education.

Sustainable development is incorporated into policies in all three spheres (national, provincial and local) of government. All local governments must follow an Integrated Development Planning (IDP) process to develop a strategic development plan for a five-year period. The IDP plan "gives an overall framework for development" in terms of "how land should be used, what infrastructure and services are needed and how the environment should be protected" (Education and Training Unit 2003) and must be drafted according to the principles of sustainability (DEAT 2002). The Department of Environmental Affairs and Tourism (DEAT) proposes that the LA21 principles can be used in the IDP process to promote sustainable development.

At the Western Cape Sustainable Development Conference in Cape Town, June 2005, delegates signed a *Declaration of Intent* to develop a Sustainable Development Implementation Plan for the Western Cape province within one year—a first for any South African province. In the meanwhile, the policy vacuum at a national level means that SA's sustainable development goals are collectively inferred from the numerous documents available. Below is a selection of these principles taken from a longer list provided by DEAT (2002):

- satisfaction of basic human needs such as food, shelter, water and energy;
- participation of individuals and communities in activities and decisions affecting them;
- support for the development of partnerships: government, community and private sector partnerships;
- accountability;
- use of local knowledge and skills; and
- commitment to training and capacity building at all levels.

These principles support the wider sustainable development goals that SA has ratified, e.g., the MDGs, and demonstrate the integrated and holistic approach that characterizes sustainable development in SA. Taking a broader view of the various rights and principles that are to be upheld by national, provincial and local governments, the following conclusions can be made:

i) there is a need to measure whether sustainable development goals are being met, for example through environmental indicators;

ii) government wants to raise awareness of environmental issues among its citizens, as well as communicate sustainable development information;

iii) government wants citizens to participate in decision-making, using their local knowledge and skills; and

iv) government acknowledges that training and capacity building are necessary to the success of the desired outcomes.

All of these activities are very much related to local content in that information that is specific to a given community, is being generated, disseminated and consumed through the processes that foster transparency, greater access to information, public participation, training, etc. The activities are all based on information and communication and, in theory, can happen with or without the support of ICTs. But increasingly, ICTs are being used somewhere in the information-chain. For example, the final product of a study on the impact of an oil refinery on air quality in Cape Town might be a printed report, but ICTs will have been used in the compiling of the report, from capturing information on air quality readings and conducting statistical analysis on the data, to actually setting the layout of the report with desktop-publishing software.

4.3   Political convergence of sustainable development and ICTs/the information society in South Africa

The following points and views illustrate the acknowledgement of the relationship between sustainable development and ICTs in SA:

- "In order for sustainable development to take place, rural and urban communities should have access to innovations that accelerate development and provide new and more effective solutions than those utilized previously" (Government of the Republic of South Africa 2002).
- There must be "sufficient funding to promote research, technology development and diffusion, as well as dissemination of knowledge" to implement sustainable development (Government of the Republic of South Africa & European Commission 2002).
- Research, technology and innovation are indispensable and fundamental engines of sustainable development (Government of the Republic of South Africa & European Commission 2002; Ngubane 2002).
- "An important new paradigm for sustainable development is the emergence of the knowledge based economy and society" (Government of the Republic of South Africa & European Commission 2003).
- Technology was a theme of the Johannesburg +2 Sustainable Development Conference.
- Technology has a key role to play in poverty alleviation (Government of the Republic of South Africa 2002; Government of the Republic of South Africa & European Commission 2002).

Furthermore, the Department of Science and Technology's (DST) aims include "harnessing the benefits of ICT for sustainable development, nurturing an appropriate

ICT capacity for South Africa, and using ICT tools to preserve and promote cultural diversity" (DST 2003).

An important influence on South African government policies and programmes is the New Partnership for Africa's Development (NEPAD). NEPAD is a pan-African vision and strategic framework for Africa's renewal, initiated in part by SA, with the following objectives: "To eradicate poverty; to place African countries, both individually and collectively, on a path of sustainable growth and development"; to accelerate Africa's "full and beneficial integration into the global economy; and to accelerate the empowerment of women" (Department of Foreign Affairs 2003). NEPAD has identified ICTs as a major contributor to achieving its goals; there is a clear link between its vision for broad ICT-enablement and sustainable development. The African Forum on Science and Technology for Development, created by NEPAD, is tasked to promote the application of science and technology for economic growth and poverty reduction. This is another example of the connections being made between sustainable development and ICTs.

While not strictly sustainable development-focused, the *ICT Charter* is applicable in that some of its goals are the same as those of sustainable development. The charter was drawn up in a consultative process by stakeholders from government, business and civil society and sets targets for the transformation (through Black economic empowerment) of the South African ICT sector. The charter recognizes the "cross cutting nature of ICT, and its role in the social and economic development of our country" and places a responsibility on all individuals and organizations in the sector to contribute towards the reduction of unemployment and poverty alleviation and "support skills development and training initiatives" (ICT Empowerment Charter Working Group 2005).

A number of common themes are found in the convergence of the many sustainable development-related publications in SA and those related to ICTs and the IS. These are generally echoed in the WSSD and WSIS principles and plans. The common themes are:

- raising awareness about sustainable development;
- information availability and thus transparency;
- public participation in governance;
- empowerment of citizens, especially women;
- fostering of cultural diversity; and
- building capacity.

The themes underpin the common goals of poverty alleviation, increased education for all, improved healthcare, etc.

What is interesting to note is that the texts that cover the convergence of the two fields, describe ICTs and the IS in relation to sustainable development, using sustainable development terms.

4.4   An environmental view of sustainable development in South Africa

While the environment is only one aspect of sustainable development, much has been written and legislated around it, and it provides a useful example as a lead-in to a discussion of the IS in SA and how the issue of local content is just as fundamental to the IS as it is to sustainable development.

The country is a natural wonderland that includes an abundance of wildlife and plant species, a coastline that is home to 3,700 marine species that occur nowhere else, and rich mineral wealth. It has the third-highest level of biodiversity in the world (GCIS 2005) and an impressive environmental heritage; for example, the Table Mountain National Park around Cape Town has more plant species than the whole of the British Isles or New Zealand. Environmental management is thus obviously important in the country.

A number of key policies and laws recognize that everyone must have access to information to enable them to: protect their health, protect the environment and to participate effectively in environmental governance. The government needs this information to measure progress in achieving sustainable development goals and monitor environmental quality. To enable public participation and empower citizens to protect the environment, government must disseminate this information through formal and informal channels in accessible formats (DEAT 1998). In fact, it is legally bound to periodically publish State of the Environment (SOE) Reports—nationally, provincially and locally.

As with the relationship between SA's sustainable development principles and local content, environmental management also drives, as well as relies upon, local content creation, dissemination and consumption by various parties. For example, the *2002 City of Cape Town SOE Report*[1] includes information on air quality, inland waters, coastal waters, etc., obtained from various stakeholders such as government and civil society. This report then feeds into the Western Cape provincial SOE report, which will be disseminated widely in various formats, e.g., as a printed report, as a file that is downloadable from a Web site (e.g., a PDF), on a CD-ROM, etc. The process thus results in information flows between many different parties who gather, aggregate, analyze, generate, disseminate and consume local content.

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1   http://www.capetown.gov.za/soe

5
The Information Society in South Africa

As the discussion now turns to the IS, the role of ICTs to support these local content dynamics is explored. But first, as with the topic of sustainable development in the preceding chapters, it is necessary to begin with a broad view of the IS landscape in SA.

The national and provincial governments have recognized the strategic importance of ICTs and the ICT sector in "enhancing the country's competitiveness and meeting development challenges" (CITI 2003). President Mbeki, referring specifically to ICTs, has said that we must "ensure that as many of our people as possible master modern technologies and integrate them in their social activities" (Government of the Republic of South Africa 2002). Furthermore, he has also highlighted the policy responsibility of government to ensure that the IS "supports and enhances the objectives of development, empowerment, economic development and preserves the constitutional values on which the whole national edifice is built" (Mbeki 1996).

5.1   ICT policy in South Africa

In SA, all public, commercial and community broadcasting is regulated by law. The South African Broadcasting Corporation (SABC) is the country's public broadcaster, mandated by the *Broadcasting Act* (No. 4 of 1999) to broadcast South African content programming in languages reflecting the country's cultural diversity; educational programming to advance lifelong learning; and programming targeted at children, women and people with disabilities.

For over a decade the telecommunications sector has been undergoing a process of "managed liberalization," whereby Telkom, the incumbent fixed-line operator, has ostensibly and slowly released its monopolistic grip. Through the *Telecommunications Act* (No. 103 of 1996) and the *Telecommunications Amendment Act* (No. 64 of 2001) a sector regulator was established, a third mobile network operator was licensed, the value added network services (VANS) and private telecommunication networks (PTNs) were partially liberalized, and a new category of under-serviced area licences was issued to increase the roll-out of services into areas with low teledensity. Further policy directives in September 2004 and February 2005 from the Ministry of Communications allow mobile operators, VANS and PTNs to resell their excess bandwidth and voice over IP services for the first time, and introduce a 50 per cent "e-rate" discount to all public schools for Internet connectivity. The directives have been welcomed by industry and will hopefully result in improved bandwidth and reduced prices for consumers.

However, these reform initiatives have not nearly addressed the telecommunications sector in SA that is "characterized by relatively high retail prices, super prof-

its, job losses, licensing delays and deadlocks and minimal new foreign investment in the sector" (Gillwald *et al.* 2005). The telecommunications regulator is often criticized for being powerless against Telkom and the licensing of the third mobile operator has not seen a reduction in costs for consumers. The draft report of the *South African 2004 e-Index Survey* (Gillwald *et al.* 2005) found "considerable evidence to suggest that the protectionist policies that accompanied the privatization of the national telecom operator have not served the country well and while they allowed for the maximization of state assets this occurred at the expense of the ICT sector and indeed the national economy."

In terms of ICT-focused legislation, the *Electronic Communications and Transactions Act* (No. 25 of 2002) recognizes "the importance of the information economy for the economic and social prosperity of the Republic." It calls for a national e-strategy, universal access to "electronic communications and transactions," and legalizes electronic transactions, among other things.

Legislation relevant to this is the *Promotion of Access to Information Act* (No. 2 of 2000), which "gives effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights." This very information-focused law centres on greater transparency and accountability, both important themes of sustainable development.

5.2 ICT penetration in South Africa

As of July 2004, the SABC's operations included (GCIS 2005):

- 18 national radio stations broadcasting in 13 languages, reaching an average audience of 19 million adults every day;
- 101 community radio stations; and
- four full-spectrum free-to-air TV channels, which, when combined, broadcast in 11 languages and reach a daily adult audience of almost 18 million people. (SA has the largest TV audience in Africa.) News is broadcast in all 11 official languages.

There is also one privately-owned digital satellite broadcaster (DStv) and one privately-owned free-to-air TV licensee (e.TV).

Despite the telecommunications policy constraints that exist, for a developing country, SA is generally well placed in global e-readiness indexes. For example, the World Economic Forum's *Global Information Technology Report* ranked SA 34th out of 104 countries in terms of e-readiness (Dutta, Lanvin & Paua 2005). South Africa is often compared to India and Brazil, which ranked 39th and 46th respectively.

In 2001, while some urban centres had strong computer-based ICT capabilities, national ICT adoption was best contextualized by the fact that only two per cent of Black African, Coloured, Asian or Indian households had a computer, as

opposed to 46 per cent of White-headed households (Stats SA 2003). Much more prolific were radios, TVs and mobile phones: nearly three-quarters of households in the country had a radio and well over half had a television (in terms of other household appliances, just over half had a refrigerator). These figures concur with the results of the South African 2004 e-Index Survey (Gillwald *et al.* 2005), which segmented its sample into metropolitan areas, other urban areas and rural areas; as anticipated, ICT penetration was skewed towards urban areas (see Figure 1).

Figure 1: Penetration of various forms of communications in South Africa
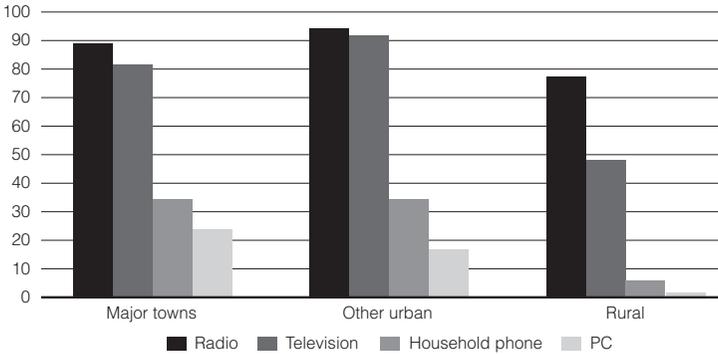
(Gillwald et al. 2005)

While the boom of mobile telephony has been impressive, it is interesting to note that of the "32 per cent of the population with mobile phones, 14 per cent also have access to a fixed-line phone, suggesting that while mobile telephony offers convenience and additional utility it has only extended access to a further 18 per cent of the population" (68 per cent of the population continue not to own phones) (Gillwald *et al.* 2005). South Africa rates poorly against comparable countries in this regard, e.g., Turkey has 39 per cent mobile and fixed-line penetration and Poland has 45 per cent. Only 3.5 per cent of households have Internet access and, of that number, 80 per cent are in metropolitan areas, 20 per cent in other urban areas and none in rural areas. This clearly shows the urban-rural digital divide in SA.

It is clear from the various sources that communications penetration within SA is heavily influenced by race and spatial factors. Perhaps the greatest constraint is cost. More than two-thirds (68 per cent) of respondents earned less than ZAR500.00 per month (approximately US$76). The problem of these painfully low incomes is compounded by high telecommunications costs; out of a survey of 15 comparable countries, SA's local call rates (peak) were 199 per cent more expensive than the average rate (South Africa Foundation 2005 in Gillwald *et al.* 2005).

Given the severe inequalities and financial and resource limitations for a large part of the population, shared access is the only viable option for many. In 2004,

there were 981 collective Internet access points such as cybercafés, government Multi-Purpose Community Centres, post offices, digital villages and telecentres (Thomas 2004 in Gillwald *et al.* 2005). Other shared-access venues include schools and universities. In the Western Cape, there are 569 schools that are at various stages of having computer labs and Internet access infrastructure installed, thanks to the Western Cape Education Department's Khanya project.[2] In 2012, Khanya aims to have every school in the province connected. The project integrates and delivers the curriculum through ICTs. Many of the schools open their labs up to the wider community after hours.

5.3 National Information Society and Development Plan and implementation strategy

The strategy aims to provide a clear national IS vision to which all spheres of government should align their own ICT strategies and programs. For example, local governments' IS plans and projects should be in line with, or feed into, their IDP plans.

5.4 Focus areas in the national IS strategy

The government has acknowledged that one of the only ways to fully realize the potential of ICTs in SA, and bridge the local digital divide, is through local content. For this reason, it is a priority focus area in the strategy, which was released in October 2005, along with e-health, e-education, e-government and small, micro and medium enterprises (SMMEs). These five priority areas are based upon four cross-cutting pillars: ICT infrastructure development; human resources development; applications; and policy environment.

The Local Content unit within the PNC is focusing on a number of related areas, including: research and development in the local economic environment; open-source software; intellectual property rights; local content financing models; and e-literacy programs. While it is currently in the process of developing a working definition of local content that will be reflective of a number of areas, it was initially focused on arts, culture and heritage. In South Africa, a large part of this includes IK and indigenous knowledge systems (IKSs).

5.5 Influences on national IS strategy

5.5.1 Existing ICT initiatives and policies

Because of the IS strategy vacuum that has existed for many years, many government ICT projects—in all three spheres—have already been implemented. These range from nationwide enterprise systems to small community ICT projects. The PNC has recognized the need for its forthcoming strategy to take these existing efforts and investments into account and be careful not to position them outside of its vision.

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2 http://www.khanya.co.za

Furthermore, national and provincial government bodies have drafted their own sectoral ICT strategies. The only national-level sectoral strategy is in education, namely the 2001 *Strategy for Information and Communication Technologies in Education* published by the Department of Education and the Department of Communications. The *White Paper on e-Education* (Department of Education 2004) explains how to reach the Department of Education's policy goal, which is for every South African learner in the general and further education and training bands to be ICT capable by 2013. This document, while high-level, shows maturity in its vision. Bridges.org (Vlachos 2004), an ICT for development non-profit organization, provided the following input to the preceding draft white paper: "It is paramount that any further sectoral legislation fits into the national e-strategy to allow for an integrated ICT policy" (Vlachos 2004). This poses a particular challenge for the national IS strategy, as it comes into being amidst existing texts.

5.5.2 WSIS

South Africa maintained a substantial presence in the run-up preparatory meetings and actual WSIS in 2003, continually sending the largest delegation among African countries (Souter 2004). A number of ICT-based initiatives from SA, such as Cape Gateway (discussed later in the paper), were invited to exhibit at the Summit's ICT for Development platform. As a signatory to the Summit texts, SA is bound to develop a national e-strategy.

In summary, South Africa has relatively poor computer and telephony penetration levels. The national IS strategy has a number of influences, predominantly SA's development policies and existing sectoral IS strategies and initiatives. Overall, ICTs have been acknowledged as crucial to the development of SA and, indeed, of Africa.

6
Local Content

6.1 Towards a definition of local content

So far, this paper has explored the history, principles and goals of sustainable development in SA, as well as ICT policies and penetration. Local content is clearly an underlying aspect of sustainable development. The ability of ICTs to enhance the generation, dissemination and consumption of content for local people, means that the convergence of sustainable development and the IS around local content is inevitable and mutually beneficial. But what exactly is meant by local content? Berger (2000) and panellists at an ICT conference in Johannesburg grappled with this question: "Thanks to technology, is all cultural production nowadays to be homogenized under this bland term—a term that conceals more than it reveals? Are museum display producers, radio dramatists, newspaper journalists and Web site designers all to become 'content-producers'?"

A definition of local content is difficult to find. This is perhaps due to the fact that "the concept of 'local' is vague" (Hampton 2003). Depending on the context, "local" could refer to a country, a village, a language or a cultural or special interest group. Furthermore, depending on the perspective taken, one person's local could be another person's global. A study commissioned by the United Kingdom Department for International Development in 2002 (Ballantyne) arrived at the definition used in this paper: that "local" refers to a community, which is defined by "its location, culture, language, or area of interest." Furthermore, the study considered local content as content coming from a community; this content was either created by the community, or taken from external sources and then adapted by the community to meet its needs. Once adapted and "assimilated into the knowledge base of the community" (Ballantyne 2002), it is considered content local to that community, which can then be "exchanged and shared, locally or globally, in various formats, packages and media."

It is useful to understand that content has expression and application (Ballantyne's terms for "creation and consumption") on a local and/or global level. For example, a community radio station is a content source of local expression and local application, in other words, locally-produced content for a local audience. The opposite end of the scale is global expression and global application, such as international news agencies that "draw on local content from all sources to address global issues" (Ballantyne 2002).

While the National Advisory Council on Innovation (NACI) (2004) describes content as "all and any types of creative human made material (whether text, pictures, audio, video, etc., and usually digitized)," Ballantyne (2002) believes that it is important to make the distinction between local content and "eContent" (digital content), and therefore "just because little eContent from developing countries is found on the Internet, it is wrong to conclude that there is a 'local content'

problem." (Note that in this paper local content is the same as "eContent," therefore it is qualified with "with the support of ICTs.") Developing countries are usually very rich in local content; it has just not yet been digitized or disseminated with the support of ICTs.

6.2 The importance of and political will for more local content with the support of ICTs

An inevitable question that has arisen out of the many debates and initiatives around increasing ICT access is: "Access to what?" Is there locally relevant content for South African citizens to access, given that "most content initiatives using ICTs tend to 'push' external content towards local people", "in other words, they mainly provide 'access' to other people's knowledge" (Ballantyne 2002)? In recent years there has been a growing recognition that a key success factor for the building of a healthy IS is when people fully appropriate ICTs and use them to create their own local electronic content (Surman and Reilly 2003).

6.2.1 On a global level

The "'digital divide' is, in effect, a reflection of existing broader socio-economic inequalities and can be characterized by ... lack of locally created content" (among other things) (G8 Information Centre 2001). This local content deficiency is the product of a number of barriers such as lack of access to ICTs, lack of ICT skills, not appreciating the benefits of local content, cultural constraints, etc. The complex set of interdependencies related to local content and ICTs is outside the scope of this paper; only directly relevant factors will be discussed here.

Almost every major ICT body—such as the UN ICT Task Force (2001) and the G8 governments' Digital Opportunities Task Force (G8 Information Centre 2001)—and ICT-related event raises the need for greater local content, especially as most content on the Web is in English. In 2000, 68 per cent of all Web sites were in English (Pastore 2000 in Warschauer 2003) but a year before that only a quarter of the world's population could speak English as a first, second or foreign language (Graddol 1999 in Warschauer 2003). "Language is one of the pillars of culture; it reflects not only the ways in which reality is captured and communicated but also the ways in which its meaning is understood and appropriated" (Morales-Gómez and Melesse 1998). Because culture is embedded in language, the prevalence of English content means that the views and context are inherently "Western." Castells (1999 in Williamson 2004) says that "language and culture are key elements and the online environment is immersed in the culture of the community that it serves." Thus existing content cannot necessarily be made locally relevant just by translation into a local language; it must be adapted within the local context.

The issue of local content has received attention most notably by its inclusion in the *Plan of Action* and *Declaration of Principles* signed at WSIS in Geneva in 2003 by all UN member states (191 countries). Both of these documents speak of the

need for ICTs to be used to preserve and foster cultural identity and linguistic diversity through the creation and dissemination of content in local languages and formats, not only for an equitable IS but also for sustainable development.

The Declaration of Principles states that the "development of local content suited to domestic or regional needs will encourage social and economic development and will stimulate participation of all stakeholders, including people living in rural, remote and marginal areas" (ITU 2003). The Plan of Action urges that local communities should be empowered to produce this content themselves using ICTs.

There are many benefits cited for local content with the support of ICTs. For example, people more easily embrace ICTs when tutorials, training materials and software interfaces are presented in local languages. These learning aids are more effective when they present appropriate day-to-day examples (Marcelle 2001), e.g., using culturally sensitive metaphors that are more relevant to rural African women than well educated, middle income, urban professionals in America.

Perhaps the most important benefit is that local content is relevant; locals must be the ones who create or adapt it so the final product has real value to local consumers. Local people are empowered in and through the process of content creation or adaptation with the support of ICTs, and the content that they produce holds great potential value for them (if they know how to best use it). Through effective partnerships among sectors and communities, knowledge networks can be established to share or sell similar content and create rich and potentially profitable bodies of knowledge.

Viewed from a sustainable development perspective, people who are empowered through ICTs to generate, disseminate or consume local content are well placed to use these high-speed communication channels to effectively report on issues, quickly mobilize resources and respond to sustainable development challenges. As stated above, local content is a fundamental building block of sustainable development.

6.2.2 In South Africa

> "The creation, production and formulation of content must be encouraged at all levels, not only at the national level of all developing countries but, within the same nation, at the local and community levels, to ensure that developing nations do not remain information consumers of a content conceived by others" (Mbeki 1996).

For SA, which is rich in heritage, cultural diversity and languages, ICTs offer many opportunities to harness and share local knowledge. Of course, diversity also poses challenges, e.g., the fact that there are 11 official languages in SA. In 2001, the National Research Foundation made local content with regard to ICTs one of its research priorities. It wanted to know more about the role of ICTs in local content and language, and the dissemination of local knowledge.

6.3 Lack of local content

"While the importance of local content has often been raised in international meetings, concrete initiatives and expertise on this topic are scarce" (Ballantyne 2002). For example, concerning material for education, Unwin (2004) notes that there is currently "very little multimedia content being developed by and for African people, let alone in local African languages." There is a distinct lack of depth within discussions on how to realize the promised benefits of local content. High-level plans don't seem to be able to move beyond the political rhetoric and thoroughly examine the key issues to make it happen or why there isn't more of it.

Among Americans with low incomes, limited-literacy or language skills, or disabilities, the greatest content barriers are lack of content related to local needs, content at inappropriate literacy levels, lack of local language content and lack of content about local culture (Lazarus and Mora 2002). These seem to represent the well-known and critical issues around local content.

6.4 Local content quotas in SA

The *Broadcasting Amendments Act* (No. 64 of 2002) requires the setting of local content quotas for radio, TV, film and video in order to grow these industries; "develop talent; invest in high quality technology; improve the quality and variety of South African music and television programming; and redress historical imbalances in the cultural and broadcast industries" (Jackson and Eksteen 2001). In the act, local content is loosely defined as non-imported content.

Since 2003, quotas are as follows (GCIS 2005): 40 per cent local content for public and community radio stations, and 25 per cent for private and public commercial stations. For TV the quotas are 55 per cent for public broadcasters, 30 per cent for commercial private and public free-to-air stations, and eight per cent for pay stations.

There are no local content quotas set for the Internet and other non-broadcast media.

6.5 The importance of arts, cultural, heritage and indigenous knowledge local content

Given the national IS strategy's hitherto focus of local content on arts, culture and heritage, it is necessary to contextualize their relevance and importance in SA.

South Africa has a diverse artistic, cultural and linguistic heritage. The Department of Arts and Culture aims to develop and preserve these national assets to "ensure social cohesion and nation-building" (GCIS 2005). The literature, theatre, dance and visual arts scene is strong, with many festivals held annually. Music is an important industry for both cultural and economic reasons. While global music sales dropped by seven per cent from 2002 to 2003 (International Federation of Phonographic Industries 2004 in GCSI 2005),

turnover in SA remained unchanged. Of particular interest was the marked increase in the amount of local material as a percentage of all music sold: a 17 per cent rise from 2002 to 2003 (GCIS 2005).

For centuries, SA's rich oral tradition has been a way to share advice, remember history, tell stories and pass reflections on contemporary society from generation to generation. The government promotes oral history, music and indigenous dance by funding research on these at three historically-disadvantaged universities. There are also many innovative preservation and promotion projects in the areas of crafts, rock art, SA legacy and heritage, and cultural tourism.

In the South Africa Human Development Report, UNDP (2003) suggests the importance of SA to capitalize "on strong capacities and knowledge systems (including regional, continental and global indigenous knowledge systems)" to ultimately "develop innovative solutions from within" and "adapt existing solutions creatively." The developmental and economic potential, especially in the Second Economy, of these areas is strong and is exploited by the government in various ways. For example, the Cultural Development and International Cooperation Programme, Investing in Culture, provides training in arts and culture; by mid-2004, over 12,000 jobs had been created and over 22,000 people had been trained (GCIS 2005).

Indigenous knowledge, also known as traditional or local knowledge, refers to the "knowledge developed by and within distinctive indigenous communities" as opposed to that from the "international knowledge system generated through universities, government research centres and private industry" (DST 2004b). Indigenous knowledge includes arts, culture, heritage, oral knowledge, traditional medicine, folklore, cultural and religious ceremonies, and indigenous games (SA's Indigenous Games Project promotes eight African and Afrikaans games). The connection between IK and sustainable development is highlighted by the DST (2004a): "IK can contribute to a sustainable development strategy that accounts for the potential of the local environment and the experience and wisdom of the indigenous population."

An IKS is any mechanism that preserves IK, such as a tribal oral tradition or database of local alternative medicines. The *Indigenous Knowledge Systems Policy* (DST 2004b) acknowledges SA's rich IK assets and their role in building national identity, preserving culture for current and future generations, and increasing tourism for those interested in indigenous peoples and practices. The commercial, medicinal and agricultural benefits of IK have warranted government funding and research.

In light of colonialism and Apartheid's brutal dismissal of all things indigenous, it is interesting to note that only in 2002 in the WSSD's Johannesburg Declaration on Sustainable Development was the term "indigenous" used by the UN without a qualifier for the first time. The rights and values of indigenous peoples and practices are thus finally beginning to be widely recognized.

6.6 Reasons for the PNC's view of local content

There appear to be a number of reasons for the PNC's decision to focus local content on arts, culture, heritage and IK:

- The PNC has recognized the need to promote IKSs for posterity and for sharing with other societies.
- The IKS "developed and maintained by South Africa's indigenous peoples pervades the lives and the belief systems of a large proportion of the country's population" (DST 2004b).
- Under Apartheid, indigenous knowledge systems were marginalized, suppressed and ridiculed (Jackson and Eksteen 2001; DST 2004b). There is therefore a strong feeling that IKSs must now finally enjoy the recognition and place they deserve.
- IKSs promote a "positive African identity" (DST 2004b) and help the diverse population groups of SA to develop a sense of identity and self-esteem.
- Both the WSIS Declaration of Principles and Plan of Action deal with local content under the heading "Cultural diversity and identity, linguistic diversity and local content"; the PNC wants to be aligned with WSIS thinking.

Because "cultural and linguistic diversity is an essential dimension of people-centred information and communication societies" (WSIS Civil Society Plenary 2003), it is commendable that the national IS strategy encourages efforts that promote local values, traditions, languages and resources through IKSs and arts, culture and heritage.

7
Examples of Sustainable Development
Local Content using ICTs

The importance of local content using ICTs is widely recognized and, therefore, the lack of it in developing countries has received much political attention, including from the president of SA. While cultural content and IK are essential aspects of local content, it comprises far more than that. The PNC has acknowledged that local content should have a broader definition than culture and IK, and is currently working on this. As a way of input to that process, it is suggested that it adopts a sustainable development view, one that is more appropriate given the position of the national IS strategy with regards to SA's development history.

To illustrate the cross-sectoral nature of local content, three organizations that implement local content projects with the support of ICTs are briefly described below. Each of these projects creates or disseminates content that is local and relevant to sustainable development.

7.1 Open Knowledge Network Mobile

The Open Knowledge Network (OKN) is an international initiative that supports local content creation in local languages with the support of ICTs. In Kenya, the OKN Mobile project[3] was set up to exploit the potential of short-message-service (SMS) messages; in a country with "40 per cent unemployment and over 60 per cent of the population living on less than US$2 per day" (Open Knowledge Network Mobile 2005), a booming mobile market provides the means by which most people communicate.

The project aim is to "provide timely, appropriate and relevant information which can help transform peoples' lives in the developing world as set out by the MDGs" (Open Knowledge Network Mobile 2005). It involves "end-users in the product development process to ensure community information needs are met." Since 2003, OKN Mobile has launched the following SMS services:

- job alerts aimed at blue-collar workers and employers, currently with over 10,000 subscribers;
- tips on pertinent health issues such as Breast Cancer and HIV/AIDS;
- MyQuestion, an SMS2Email service that allows people to anonymously ask HIV/AIDS and breast cancer related questions and receive answers; and
- the Community News service distributed for free to over 5,000 subscribers in Kibera.

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3 http://www.oknmobile.com. OKN Mobile is discussed in greater detail in "Using ICTs for Poverty Reduction and Environmental Protection in Kenya," starting on page 43.

Based on the success of these products the following additional services will be launched later in 2005: a medication reminder service, an entrepreneurial support channel and an IT Q&A service.

OKN Mobile generates and disseminates local content using ICTs to support sustainable development in the following ways: it stimulates job seeking activities as well as educates its subscriber base on health issues; it provides content specifically for women; and fosters local culture through its community news service.

7.2 Mindset Network

Mindset Network[4] is a South African educational non-profit organization, operating there and in other African countries, that generates and disseminates relevant, contextually-based, multimedia content with the support of ICTs. It currently has two channels, Learn and Health, and will launch two more, Primary School and Livelihood, later in 2005. Each channel offers content in video, Web and print formats.

Mindset Learn provides infrastructure, equipment and training to educators so that they can effectively use and integrate ICTs into teaching and learning. Video content is broadcast to 2,000 high schools and over a million homes in Southern Africa via the DStv satellite platform. Content is also available on their Web site.

The Health Channel targets HIV/AIDS and tuberculosis content at healthcare workers and patients in five South African languages: English, Afrikaans, Zulu, Xhosa and Sotho. Mindset Health shows video content at more than 100 clinics in SA. According to preliminary research, there was "a visible increase in Voluntary Counselling and Testing (VCT) in clinics where Mindset Network content is used, and that patients were more responsive and interacted more with healthcare workers after viewing Mindset Network content" (Wentzel 2005).

Through a holistic solution, which offers quality ICT-based local content at no cost to the end user, Mindset Network supports the MDGs in the following ways (Wentzel 2005): promotes gender equality and empowers women by "creating content that addresses gender stereotypes found in African society" through "the portrayal of men and women as equal in all areas, for example by focusing on women in mathematics and science fields and the father's role in child survival"; and helps to combat HIV/AIDS and other diseases.

Furthermore, Mindset Network supports sustainable development by educating learners, building capacity among teachers and healthcare workers, and fostering cultural diversity through linguistic diversity.

7.3 Centre for e-Innovation

The Centre for e-Innovation (CeI) is the main e-government body in the Provincial Government of the Western Cape. Its Cape Gateway project provides

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4   http://www.mindset.co.za

access to government information and services through a call-centre, walk-in centre and portal.[5] The portal has over 30,000 pages of information. Content on the site has either been digitized from original sources, e.g., from printed acts, rewritten from existing sources into plain language, or specifically created. The content team has translated key sections of content like government services into Afrikaans and Xhosa, where those translations didn't already exist. The portal includes government publications and policies, services, projects, facilities, jobs and tenders covering topics from education, health and tourism to the environment, arts and culture.

Cape Access is a pilot project that provides ICT access and e-literacy training at rural sites in the Western Cape. The CeI is sponsoring an exhibition of the six pilot sites at the Internet Society Week in Cape Town in August 2005. As part of the exhibition, a Wiki[6] will be provided for people from the six geographically dispersed sites to share lessons learned from the project at their own site, in their own language. This is a good opportunity for local content creation by rural people; lessons drawn afterwards will help to increase understanding of the complex issues of ICT-enabled content creation and telecentre sustainability.

The CeI generates and disseminates local content using ICTs to support sustainable development in the following ways: it provides an accessible resource of information on the delivery of basic services (water, electricity, etc.) and on SMMEs, thereby promoting economic development and poverty alleviation; provides information specifically aimed at women, the youth and people with disabilities; fosters transparency; builds capacity; and promotes cultural and linguistic diversity.

While all of these projects don't directly enable public participation in governance, they lay the foundation for this by providing information that empowers people, raises awareness and encourages transparency. Ultimately, an empowered populace can demand more from its authorities, hold them to deliver on promises and services, and offer informed input regarding activities that affect them.

A local content project that is entirely based on arts, culture, heritage or IK, e.g., the training of indigenous peoples to publish their indigenous stories on a Web site, also contributes to sustainable development. But the important point to note is that the projects described above do not fit into a culture-focused view of local content, even though they are good examples of ICT-based local content projects.

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5   http://www.capegateway.gov.za

6   A Wiki is a Web site that allows users to easily add content to the site, but also allows anyone to edit the content. It is a popular collaborative content management tool.

8
Towards a Broader Definition of Local Content

While there is a genuine need in SA for a restoration and celebration of IK, for reasons of posterity, rebuilding of national identity and even, according to the DST (2004b), its role "in employment and wealth creation," there are dangers in having a limited definition of local content. The way concepts are defined, and the words used in the definitions, can easily make people draw incorrect assumptions or limit the way people think about those concepts (Kvasny and Truex 2001). Thus to promote local content as primarily cultural and traditional content can undermine the power of local content in other key areas, e.g., e-government, SMMEs, modern medicine, etc. All thinking around local content, including its monetary value, will be somewhat influenced by a limited view, and that can be problematic, especially for communities who are not primarily concerned with IK.

Another concern is that global ICT networks can turn knowledge—indigenous or otherwise—and culture into commodities, which "can be controlled and sold often without attention to cultural preservation considerations" (Jackson and Eksteen 2001). Furthermore, because IK is "dynamic and based on innovation, adaptation and experimentation," it is not easy to codify and doing so "may lead to the loss of some of its properties" (DST 2004a). This poses a risk of actually reinforcing the marginalization of indigenous people if the digitization of content does not show the necessary sensitivity to the historical and human systems within which that content exists (Jackson and Eksteen 2001). This is a real challenge for ICT-based IKSs.

While these risks are only potential ones, they should be borne in mind. In the light of the strong convergence of sustainable development and the IS around local content, it is recommended that a sustainable development paradigm be applied to the definition of local content, that is, that a more holistic view be taken.

8.1 Recommendations for the national IS strategy

Zhu *et al.* (2003 in Williamson 2004) observe that, in considering the adoption of ICTs, "it is important to consider the micro-level motivators, both societal and personal. They suggest that individuals need to first be aware of and then motivated to want to use ICTs and, subsequently, that it is important that individuals and groups are able to identify value in its ongoing use."

Thus on a general level the national IS strategy should promote ICTs so that people are aware of them and their benefits. This exercise should also serve to demystify ICTs; people need to move beyond seeing ICTs as computers and realize that their mobile phones, TVs and radios are also ICTs. It will probably come as a surprise to many people that ICTs are already entrenched in their lives. Furthermore, awareness-raising must be cognisant of the negative perception that some people

have of ICTs, e.g., individuals who have been made redundant in factories due to new technologies, or lack of ICT skills meaning that someone does not get a particular job. The awareness exercise must be an educational one that realistically demonstrates the potential of ICTs for people in real, tangible ways, e.g., an SMS job alert service, or the use of satellite imagery in weather predictions, which informs agricultural practices that have a direct impact on GDP for a country like SA.

Ultimately, regarding local content, communities should be helped to express their information needs, then be provided access to that information and finally empowered to create it themselves. At the Cape Town workshop, Dave MacDevette of Empowerment for African Sustainable Development suggested that the government needs to create an enabling environment for local content in SA. But how can it do this? How can it create an environment that promotes the full and equal participation of all South Africans in sustainably growing the body of local content?

The following are recommendations to the PNC as it drafts the national IS strategy, which is a key element of the desired enabling environment.

- Given the government's strong commitment to sustainable development, it would seem important for government to portray ICTs not as an end unto themselves, but rather as powerful tools that need to be managed and integrated into society along the principles of sustainable development. Government must convey that its vision of the IS is not something with entirely new goals and values, but is a "connected" society that uses ICTs to support SA's existing efforts towards sustainably meeting its development goals.

- In order to help the national IS strategy couch the IS within sustainable development, it should provide tangible benefits to using ICTs to achieve sustainable development goals, for example, demonstrate how ICTs help a girl leaving school to find employment.

- The national IS strategy should define local content as something bigger than arts, culture and heritage. Because local content runs right through the other four priority areas—e-health, e-education, e-government and SMMEs—local content should rather become an underlying "pillar," or a sub-component of each of the other four areas. Taking a broad view of local content, one that can work when applied to any sector, will help people to make the connection between their needs, their personal and wider community motivators, and how ICTs can meet these. This is an important step for increased ICT adoption.

9
Looking Ahead

Broadly speaking, the work of the PNC is to create a framework for the building of an IS in SA. It is currently consulting with key departments to ensure that their sectoral interests are promoted in the IS strategy. After the strategy is released there will be more prescriptive policies and sector-specific ICT strategies created by stakeholders within all three spheres of government. The mandate of the PNC is to inform and guide the work of these "line function" departments, for example, the way it collaborated with the Department of Communications on its e-education strategy.

The fact that each department will ultimately drive its own IS strategy is potentially good news for sustainable development. As long as there is a broad sustainable development focus within a department there is scope for it to be cognisant of drafting IS strategies that support this. Still, the PNC would do well to keep pushing a sustainable development agenda as it assists departments to apply ICTs in their specific sectors. In fact, this applies to all country governments if there is to be the desired convergence of sustainable development and IS policy efforts in the world.

10
Conclusion

Local content is a major area of convergence between sustainable development and the IS, cutting across many sectors. It is relevant in that it is the product of a move towards greater access to information, transparency, accountability, cultural diversity and the empowerment of people to participate in decision-making that affects them. It can be seen as the currency of a community in the IS. The national IS strategy should, therefore, not limit local content using ICTs to arts, culture, heritage and IK, but rather give it a broader definition that allows it to play its important role as a contributing factor to achieving sustainable development.

In conclusion, the national IS strategy must make ICTs real to the citizens of SA. It is easy to make certain sustainable development issues real when they are clearly visible, e.g., the need to address the problem of an upstream factory that dumps its waste products into a river on which a local community relies for fishing. But motivating for an IS can be difficult, especially in the context of developing countries where more urgent needs characterize daily existence. In order to demonstrate the importance of local content using ICTs in this regard, it is necessary to apply it to the needs of people, which aren't always arts, culture or heritage based. Again, this supports the call for a broader definition of local content that is more cross-sectoral.

This paper has shown how real and strong the influence of sustainable development is on the positioning of local content with the support of ICTs in a South African IS strategy context. South Africa has waited a long time for a national IS strategy, even while "the centrality of ICT to economic growth and poverty alleviation has been widely articulated" (Gillwald *et al.* 2005). As the country continues to grow out of the Apartheid legacy and deals with its major developmental challenges, the IS strategy should continue the tradition of commitment to sustainable development as evident in SA's existing policies.

Bibliography

ANC (African National Congress) 2002, *World Summit on Sustainable Development: A Briefing Note for ANC Branches & Other Local Structures.* Accessed May 12, 2005. <http://www.anc.org.za/ancdocs/misc/briefing.html>.

Ballantyne, P. 2002, *Collecting and Propagating Local Development Content.* Accessed April 12, 2005. <http://www.ftpiicd.org/files/research/reports/report7.pdf>.

Berger, G. 2000, "When Cultural Content and Information Technology Converge." *The Southern African Journal of Information and Communication* Vol. 2, No. 1.

CITI (Cape IT Initiative) 2003, *First Census of Western Cape ICT Companies.* Accessed March 16, 2005. <http://www.citi.org.za>.

Department of Education 2004, *White Paper on e-Education: Transforming Learning and Teaching through ICT.* Accessed May 13, 2005. <http://www.capegateway.gov.za/eng/publications/white_papers/2004/93586>.

DEADP (Department of Environmental Affairs and Development Planning) 2005, *Declaration of Intent to develop a Sustainable Development Implementation Plan (SDIP) for the Western Cape.* Accessed July 4, 2005. <http://www.capetown-sdc.co.za/docs/SDIP_Declaration_FINAL_22_June_-_Revised28June.pdf>.

DEAT (Department of Environment Affairs and Tourism) 1998, *Environmental Management Policy White Paper.* Accessed April 16, 2005. <http://www.info.gov.za/whitepapers/1998/environwp.pdf>.

DEAT (Department of Environmental Affairs and Tourism) 2002, *National Framework Document: Strengthening Sustainability in the Integrated Development Planning Process (Final Draft).* Accessed June 13, 2005. <http://www.environment.gov.za/soer/resource/IDP/0302%20draft%20IDP%20framework.pdf>.

Department of Foreign Affairs 2003, *NEPAD in Brief.* Accessed May 16, 2005. <http://www.dfa.gov.za/au.nepad/nepadbrief.htm>.

DST (Department of Science and Technology) 2003, *The Department of Science and Technology and the CSIR Showcase Three of South Africa's ICT Projects during the WSIS.* Accessed April 2, 2005. <http://www.info.gov.za/speeches/2003/03121115461006.htm>.

DST (Department of Science and Technology) 2004a, *Indigenous Knowledge.* Accessed June 1, 2005. <http://www.dst.gov.za/programmes/indigenous_knowledge/indigenous_knowledge.htm>.

DST (Department of Science and Technology) 2004b, *Indigenous Knowledge Systems (IKS) Policy*. Accessed June 1, 2005. <http://www.dst.gov.za/reports/iks_policy.pdf>.

Dutta, S., Lanvin, B. and Paua, F. 2005, *The Global Information Technology Report 2004–2005*, Palgrave Macmillan, New York.

Education and Training Unit 2003, *Integrated Development Planning for Local Government*. Accessed April 12, 2005. <http://www.etu.org.za/toolbox/docs/localgov/webidp.html>.

G8 Information Centre 2001, *Digital Opportunities for All: Meeting the Challenge. Report of the Digital Opportunity Task Force (DOT Force) including a proposal for a Genoa Plan of Action*. Accessed April 27, 2005. <http://www.g8.utoronto.ca/summit/2001genoa/dotforce1.html>.

GCIS (Government Communication and Information System) 2005, *South Africa Yearbook 2004/2005*. Accessed April 3, 2005. <http://www.gcis.gov.za/docs/publications/yearbook.htm>.

Gillwald, A., Esselaar, S., Burton, P. and Stavrou, A. 2005, *Towards an e-Index for South Africa: Measuring household and individual access and usage of ICT (DRAFT)*. Accessed July 1, 2005. <http://www.regulateonline.org/content/view/404/31/>.

Government of the Republic of South Africa 1996, *Constitution of the Republic of South Africa*. Accessed April 3, 2005. <http://www.info.gov.za/documents/constitution/index.htm>.

Government of the Republic of South Africa 2002, *South Africa's National Research and Development Strategy*. Accessed April 3, 2005. <http://www.dst.gov.za/legislation_policies/strategic_reps/sa_nat_rd_strat.pdf>.

Government of the Republic of South Africa & European Commission 2002, *Ubuntu Minute on Science and Technology for Sustainable Development*. Accessed May 3, 2005. <http://www.dst.gov.za/programmes/multilateral/ubuntumin.pdf>.

Hampton, A. 2003, *A Hitchhiker's Guide to the Information Highway*. Accessed April 16, 2005. <http://portal.unesco.org/ci/en/file_download.php/ 98a00d0fd94119a0458e1a0d059b0185Hampton+Discussion+English.pdf>.

Hilty, L. M., Seifert, E. K., Treiber R. 2005, *Information Systems for Sustainable Development*, Swiss Federal Labs for Materials Testing & Research, Switzerland; Wuppertal Institute, Germany; Hochschule Niederrhein, Germany.

ICT Empowerment Charter Working Group 2005, *ICT Empowerment Charter - Final Version May 2005*. Accessed July 10, 2005. <http://www.ictcharter.org.za>.

ITU (International Telecommunication Union) 2003, *World Summit on the Information Society Declaration of Principles*. Accessed April 16, 2005. <http://www.itu.int/wsis/docs/geneva/official/dop.html>.

Jackson, C-A., Eksteen, J. 2001, *Local Content Creation and e-Commerce: A South African Perspective*. Accessed March 12, 2005. <http://www.spbo.unibo.it/sdic/img/s_event/careyann_jackson.pdf>.

Johannesburg Declaration on Sustainable Development 2002. Accessed April 16, 2005. <http://www.deat.gov.za/Documents/Documents/JhbDeclare/jo_pol_declare_04092002.htm>.

Kvasny, L. and Truex, D., 2001, "Defining away the Digital Divide: A Content Analysis of Institutional Influences on Popular Representations of Technology." In Proceedings of the IFIP TC8/WG8.2 Conference on Realigning Research and Practice in Information Systems Development: The Social and Organizational Perspective, (Russo, N. L., Fitzgerald, B. and DeGross, J. I. Eds.), p. 399, Kluwer Academic Publishers, Boston.

Lazarus, W., Mora, F. 2002, *Online Content for Low-Income and Underserved Americans: The Digital Divide's New Frontier*. Accessed June 2, 2005. <http://www.childrenspartnership.org/pub/low_income/index.html>.

Marcelle, G. "Creating an African Women's Cyberspace," *The Southern African Journal of Information and Communication* 1, no. 1 (2001).

Mbeki, T. 1996, *Opening Address by Executive Deputy President Thabo Mbeki to the Information Society and Development Conference*. Accessed June 3, 2005. <http://www.pnc.gov.za/speech10pf.htm>.

Morales-Gómez, D. and Melesse, M. 1998, "Utilizing Information and Communication Technologies for Development: The Social Dimensions," *Journal of Information Technology for Development*, Vol. 8, No. 1.

NACI (National Advisory Council on Innovation) 2004, *Free/Libre & Open Source Software and Open Standards in South Africa: A Critical Issue for Addressing the Digital Divide*. Accessed April 1, 2005. <http://www.naci.org.za/floss>.

Ngubane, B. 2002, *A developing country's perspective on technology transfer, cooperation and development at WSSD* (Speech by the Minister of Arts, Culture, Science and Technology). Accessed April 16, 2005. <http://www.dac.gov.za/news/speeches/2002_01_17-18.htm>.

Open Knowledge Network Mobile 2005. Accessed June 14, 2005. <http://www.oknmobile.com>.

Selwyn, N. 2002, *Defining the 'Digital Divide': Developing a Theoretical Understanding of Inequalities in the Information Age*. Accessed March 1, 2005. <http://www.cf.ac.uk/socsi/ict/definingdigitaldivide.pdf>.

Souter, D. 2004, *African Participation in WSIS: Review and discussion paper*. Accessed July 14, 2005. <http://africa.rights.apc.org/index.shtml?apc=21879se_1&x=28076>.

Stats SA (Statistics South Africa) 2003, *Census in Brief*. Accessed June 1, 2005. <http://www.statssa.gov.za>.

Sundén, S. and Wicander G. 2003, *Bridging the Digital Divide – ICT Solutions Supporting Economic and Social Development for the Unseen Majority*. Accessed March 2, 2005. <http://www.humanit.org/pdf/HumanIT_2003_Ch1_Sunden_och_Wicander.pdf>.

Surman, M. and Reilly, K. 2003, *Appropriating the Internet for Social Change: Towards the Strategic Use of Networked Technologies by Transnational Civil Society Organisations*. Accessed March 16, 2005. <http://www.ssrc.org/programs/itic/civ_soc_report/index.page>.

TechTarget 1999, I*nformation Society*. Accessed May 1, 2005. <http://whatis.techtarget.com/definition/0,,sid9_gci213588,00.html>.

UNDP (United Nations Development Programme) 1997, *Human Development Report 1997*. Oxford University Press, New York.

UNDP (United Nations Development Programme) 2003, *South Africa Human Development Report 2003*. Accessed June 25, 2005. <http://www.undp.org.za/NHDR2003.htm>.

UN ICT Task Force 2001, *Plan of Action*. Accessed April 25, 2005. <http://www.unicttaskforce.org/about/planofaction.html>.

Unwin, T. 2004, *Towards a Framework for the Use of ICT in Teacher Training in Africa*. Accessed April 15, 2005. <http://www.gg.rhul.ac.uk/ict4d/ICT%20TT%20Africa.pdf>.

Vlachos, L. 2004, *Comments submitted by bridges.org on the Draft e-Education White Paper*. Accessed April 15, 2005. <http://www.bridges.org/e-policy/sa/submissions/e_education.html>.

Warschauer, M. 2003, *Technology and Social Inclusion: Rethinking the Digital Divide*, MIT Press, Boston.

WCED (World Commission on Environment and Development) 1987, *Our Common Future*, Oxford University Press, Oxford.

Wentzel, Elbereth. "RE: Invitation to IS and SD Workshop," June 8, 2005. (Personal correspondence.)

Williamson, A. 2004, *Getting Ready for eDemocracy: A Five-stage Maturity Model for Community ICT*. Accessed March 16, 2005. <http://www.public-policy.unimelb.edu.auegovernance/papers/42_Williamson.pdf>.

WSIS (World Summit on the Information Society) Civil Society Plenary 2003, *Civil Society Declaration to the World Summit on the Information Society.* Accessed April 16, 2005. <http://www.smsitunis2005.org/plateforme/pdf/civil-society-declaration-en.pdf>.

Zuma, N. D. 2004, *Address by the Minister of Foreign Affairs of the Republic of South Africa, Dr. Nkosazana Dlamini Zuma, at the National Conference on Sustainable Development Johannesburg.* Accessed June 16, 2005. <http://www.dfa.gov.za/docs/speeches/2004/dzum0903.htm>.