

The NEPAD e-Schools Demonstration Project: *A Work in Progress*

A Public Report



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ACRONYMS AND ABBREVIATIONS

CLP	Country Liaison Person
COL	Commonwealth of Learning
eAC	NEPAD e-Africa Commission
<i>infoDev</i>	Information for Development program (at the World Bank)
ISPAD	Information Society Partnership for Africa's Development
M&E	Monitoring and evaluation
NEPAD	New Partnership for Africa's Development

REPORT LIMITATIONS

The monitoring and evaluation of the NEPAD e-Schools Demonstration Project primarily focused on assisting the e-Africa Commission, participating Ministries of Education, and the members of the five consortia leading project implementation in learning about the processes of managing a complex public private partnership, the training and support requirements for teachers, the provision of curriculum-relevant digital content, and, learning how best to assess the implementation of ICT in schools.

While the project should still be considered a work-in-progress, this ‘public report’ is not an end-of-project, summative evaluation. Rather, it is meant to share some of the general lessons learned by project stakeholders to date with a larger community of interest.

This report should be read with the following limitations in mind:

- The observations are focused on general “lessons learned” rather than on an assessment of impact;
- The observations represent a synthesis of the data collected during the M&E process of the Demo project, and do not comment on individual countries, consortia or specific ICT models;
- The data during the M&E exercise collected were primarily qualitative, based on the perceptions of respondents, with only limited on-site verification by the researchers.

PROJECT BACKGROUND

NEPAD e-Schools Overview

A major component of the New Partnership for Africa's Development (NEPAD) is the development of information and communications technology (ICT) infrastructure, which is considered essential to the achievement of long-term, sustainable socio-economic development on the African continent. The NEPAD e-Africa Commission (eAC) has been tasked as the coordinating organization responsible for developing and implementing ICT projects, one of which is the NEPAD e-Schools Initiative.

NEPAD e-Schools is a multi-country, multi-stakeholder, continental initiative to:

- Teach ICT skills to young Africans in primary and secondary schools.
- Improve the provision of education in schools through ICT applications and the use of the Internet.

There is extensive private sector involvement in the e-School initiative through the Information Society Partnership for Africa's Development (ISPAD), which brings together fiscal and human resources, ICT infrastructure and curriculum materials from private and public sector partners and civil society.

The 'Demo Project'

The first phase of the initiative is a Demonstration (Demo) project that is being implemented by the private sector partners, organised into five 'consortia', led by AMD, Cisco, HP, Microsoft and Oracle. The purpose of the NEPAD e-Schools Demo is to accrue a body of knowledge, based on real-life experiences of implementing Information and Communications Technologies (ICTs) in schools across the African continent, which will serve to inform the rollout of the NEPAD e-Schools Initiative. More specifically, the objectives of the Demo project are to:

- Determine typical e-School scenarios and requirements in various circumstances in Africa.
- Highlight the challenges inherent in a large-scale implementation of e-Schools programmes.
- Monitor the effectiveness of multi-country, multi-stakeholder partnerships.
- Determine "best practice" and exemplary working models for the large-scale implementation of the NEPAD e-Schools Initiative, which aims to equip more than 550,000 African schools with ICTs and connect them to the Internet by 2020.
- Demonstrate the costs, benefits, appropriateness and challenges of a satellite-based network.
- Demonstrate the costs, benefits and challenges of ICT use in African schools.

The Demo project is being implemented in six schools in each of 16 countries across Africa through partnerships that involve private sector consortia, the country government and eAC. The role of each partner is set out in a Memorandum of Understanding (MOU) signed by the partners. (A list of participating countries, including the consortia assigned to each country and the schools involved, is included in Appendix A.) A full list of the members of each consortium is available from eAC.

Under the terms of the MOU, the consortia were to provide schools with an e-school model that included equipment, networking, connectivity, training and curriculum-relevant learning materials. They were also to support the operation of e-school activities for one year following implementation. The eAC's responsibilities included managing and co-ordinating the project; handling communication between partners and with media; facilitating the signing of MOUs; and ensuring the conduct of research, monitoring and evaluation. Each participating country committed to select six schools, to provide appropriate physical facilities for the equipment at each school and to facilitate the implementation and operation of the project by naming a country liaison person (CLP) to ensure co-operation between the ministry and the implementing consortia.

Implementation Timelines

Initially, the Demo project was intended to last 12 months. Implementation has occurred at a slower pace than originally envisioned. The NEPAD e-Schools Initiative was publicly launched at the 2003 African Economic Summit in Durban, South Africa on 13 June, 2003. The first NEPAD e-School was launched in October of 2005 in Uganda. Implementation of all schools participating in the Demo is expected to be completed by the fourth quarter of 2007.

M&E of the Demo Project

Given that the NEPAD e-Schools Demo was essentially intended as a learning exercise to inform the responsible rollout of the broader NEPAD e-Schools Initiative, it was decided that the Demo should include a comprehensive monitoring and evaluation (M&E) component.

The Commonwealth of Learning, at the request of the e-Africa Commission, led the monitoring and evaluation (M&E) of the Demo project in partnership with the Information for Development Program (*infoDev*), a multi-donor partnership housed at the World Bank. Dr. Glen Farrell led the M&E process on behalf of COL and, as of May 2006, was assisted by Ms. Shafika Isaacs, a former Executive Director of SchoolNet Africa and now the Education Director at Mindset Network, located in Johannesburg, South Africa. At COL, this project was initiated by Vis Naidoo and then managed by Paul West. Michael Trucano was the task manager for this project at *infoDev*.

This M&E process served the following purposes:

- It provided the managers and decision-makers responsible for implementing the Demo project with information and feedback as the project proceeds in order for them to make any necessary adjustments.
- It synthesised the lessons learned during the Demo project and made recommendations for the comprehensive rollout of the NEPAD e-Schools Initiative in a summary report at the end of the demonstration period.
- It provided a ‘model’ for the eAC, ministries of education, and, participating consortia how NEPAD e-Schools may wish to monitor and evaluate various components and activities of the project going forward by identifying related costs, human resource needs, coordination and planning implications, etc. For example, the CLP for Kenya developed an M&E strategy based on the Demo model that was then used by the Kenya Implementing Team to assess performance of the implementation in that country.

The monitoring and evaluation plan called for quantitative and qualitative data collection via questionnaires, focus groups, project reports, interviews and teacher logs, from a variety of sources including government departments, school principals, teachers, students, consortia leaders and the project team at the eAC.

The M&E process reported on the extent to which the Demo achieved the objectives of NEPAD e-Schools, as well as on the appropriateness of interventions and the process of implementation.

A special note on this ‘public report’

This public report on the NEPAD e-Schools Demo Project summarises the general lessons learned from the Demo Project. It is important to note that this public report does not comment specifically on the activities of individual consortia or consortium members, nor on specific activities in participating countries.

Even though the Demo project has not been fully implemented in all countries, this public report is being released now because of the need for reasonable consistency in data collection and provision of feedback to those countries that are ready for the next phase. *It is, therefore, a report of a work in progress rather than an end-of-project, summative evaluation.*

This public report draws on information and analysis presented in a series of internal M&E reports to the eAC during the life of the Demo project and marks the completion of the agreement between COL, *infoDev* and eAC on the leadership of the M&E component of the Demo project. Two interim internal reports were provided to the eAC in January and July 2006. The first internal report included a summary of baseline data gathered from the schools prior to the start of the Demo implementation, as well as feedback to the partners regarding the implementation process and how it could be improved. The second interim internal report also focused on the Demo implementation process, the issues and challenges being encountered, and recommendations for dealing with them. It also addressed some post-Demo questions and issues that were emerging. A final internal report was provided

to the eAC in January 2007, summarising the progress made to date in those schools where the Demo has been fully implemented for a period of time and the lessons learned from that experience. All three internal reports are available from the eAC (for updated contact information for this project at the eAC, please see <http://www.eafricancommission.org/>).

Data for this final public report have been gathered from the following sources:

- Questionnaires, comparable to those used to collect baseline data, completed by teachers, students and school heads at those schools where the project has been fully implemented for a minimum of three months. (A fully implemented school is defined as one having all equipment installed and operational, a cadre of teachers trained, digital learning materials available, and an Internet connection functioning.)
- A questionnaire, designed to assess the impact of the Demo on policy development, completed by a Ministry of Education official in each country.
- A report from each of the country liaison persons (CLPs) on the status and impact of the Demo in their country.
- Interviews with the leader of each of the five consortia.
- Site visits to selected schools in, Kenya, Mali, Rwanda, Senegal, South Africa and Uganda.
- A workshop involving representatives from civil society organisations involved in ICT in schools in Africa, selected CLPs, the private sector, and eAC to discuss lessons learned and implications for the NEPAD e-Schools Initiative.
- Interviews with eAC staff involved in the leadership of the Demo project.

More information about the monitoring and evaluation of the NEPAD e-Schools Demo project can be found on the *infoDev* web site at <http://www.infodiv.org/nepad-eschools>.

Table 1: Demo Implementation Status as of December 2006
from the Country Liaison Person (CLP) reports

Country	Demo implementation status		
	Schools Fully Completed	Schools Partially Complete	No Implementation
Algeria			6 (Expected to begin 2007)
Burkina Faso			6 (consortia have made site visits)
Cameroon			6
Egypt	4	1	1
Gabon		6	
Ghana	3	3	
Kenya	6		
Lesotho	3	3	
Mali		5	1
Mauritius	6		
Mozambique		4	2
Nigeria	0	1	5 (2 by second quarter of 2007)
Rwanda	6		
Senegal			6 (activity beginning at 3 schools {insert date})
South Africa	3	2	1 (expected Feb. 28/07)
Uganda	1	2	3 (one by second quarter 2007)

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EXECUTIVE SUMMARY

Background

The NEPAD e-Schools Initiative is a multi-country, multi-stakeholder, continental project to teach ICT skills to young Africans in primary and secondary schools and improve the provision of education in schools through the use of ICT applications and the Internet. The first phase of the Initiative is a “Demonstration Project” (“Demo”) being implemented by NEPAD through the e-Africa Commission (eAC), in partnership with private sector organisations. Six schools in each of 16 countries were selected to participate. The Commonwealth of Learning, in partnership with *infoDev*, a multi-donor partnership housed at the World Bank, managed the monitoring and evaluation of the Demo project at the request of the eAC.

This public report is a synthesis of the lessons learned from the Demo Project to date, based on a series of internal reports provided to the e-Africa Commission during the course of the monitoring and evaluation process.

Summary Comments

The purpose of the Demo is to inform the subsequent rollout of the broader NEPAD e-Schools Initiative, and the monitoring and evaluation activity was intended as key tool in this learning process. As such, the observations presented in this report are intended to help shape the decision making process of the broad range of stakeholders in the wider NEPAD e-Schools initiative going forward. They should not be interpreted as direct comment on the success or failure of the NEPAD e-Schools Initiative more generally, nor on the success or failure of the activities of specific stakeholders. The NEPAD e-Schools Initiative is an ambitious, even audacious, undertaking. The eAC, recognising that learning from experience is an iterative process, has sought to build in an M&E process from the very start of the initiative, beginning with this first Demo phase. It is important to note that, as envisioned, the project is without precedent in terms of its international scope, socio-economic diversity and the comprehensiveness of the partnerships it comprises. While the expectations of the Demo phase may well have exceeded the practical bounds of its reach within the expected initial timeframe, the long term vision, and the primary objectives of the initiative, continue to be of critical importance to development on the continent.

Project Implementation

The NEPAD e-Schools Demo Project is a very complex undertaking, given its range of stakeholders and its international scope. The following points summarise the main issues identified during the monitoring and evaluation process:

- *Implementation timeline*
The implementation process has taken much longer than the one year initially expected. The Demo was approved by the NEPAD e-Schools Coordinating Body in February 2005 and the first school officially launched in Uganda in October 2005. The variances between and within the countries has compromised both the achievement of the Demo objectives and the monitoring and evaluation (M&E) process.
- *Project leadership*
The eAC's ability to provide effective project management leadership has been seriously constrained by a lack of both human and fiscal resources. The most serious consequence of this has been the lack of effective communication among project partners.
- *Project assumptions*
Many of the assumptions about ICT use in education in Africa that underpinned the objectives of the Demo have proven to be invalid. A review of "best practices," gleaned from similar projects in Africa and elsewhere, plus a better understanding of current related projects in the target countries, would have been useful in the early planning stages of the project.
- *Country preparedness*
Not all countries were equally prepared to take on a project of this nature, which meant that, for some, implementation has been delayed.
- *Civil society inclusion*
The failure to actively include civil society organisations that have experience in introducing ICT in schools in Africa deprived the project of valuable support and resources in its initial phases.

Unanticipated Outcomes

- *Government policies*
The Demo is having a major impact on governments in terms of their awareness of the importance of adopting ICT in their strategic educational plans. This may be the greatest achievement to date in those countries that did not have an ICT in education policy already in place.
- *Public/private partnerships*
The public/private partnership model initiated by the eAC has been replicated in a

least one country, Kenya, and is being considered in some others.

- *Local partners*
The use of local partners is proving to have a major effect on the ease and efficacy in the implementation of the project and in providing support to teachers.
- *Community impact*
The impact of the Demo school in local communities has been much more comprehensive than was anticipated. Teachers from neighbouring schools that have no ICT facilities are being trained to use the Internet at the Demo school and community groups are being encouraged, for a fee, to use the school as a “learning centre” during non-school hours.
- *Project reconceptualisation*
The Demo appears to have triggered a process of “reconceptualisation” of the NEPAD e-Schools Initiative, not in terms of the end results that the Heads of Governments have articulated for the programme, but of the means through which to achieve them.

Lessons Learned

The following comments are related to the coordination of a complex, multi-country, multi-stakeholder project implemented in close partnership with the private sector. These lessons are culled from responses to policy questionnaires completed by Ministry of Education officials as part of the M&E process, interviews with the leaders of each of the consortia, and from interviews with the eAC staff involved in managing the Demo:

- *Implementation support*
Implementation and follow-up support have been more effective when local companies/organisations have been involved. Local support infrastructure must be developed and available to schools if the Demo schools are to continue after the Demo project period.
- *Leadership*
Leadership for complex projects with multiple stakeholders in multiple countries such as this has significant resource requirements, which, if not provided, can seriously compromise the project. The commitment of senior leadership to the project is a major determinant of success. Support mechanisms such as the NEPAD e-Schools Coordinating Body and National Implementing Teams, working with the CLPs, have been under-utilised in terms of supporting the eAC and the CLPs.
- *Raising expectations*
The expectations that implementation of the Demo would occur within a few months of it being announced in the participating counties, and, that a Business Plan would be developed to address sustainability and future rollout, were not

met, and explanations for the delays were not effectively communicated. The disappointment and cynicism that resulted in some of the participating countries underlines the oft-learned rule of project management: Communicate! Communicate! Communicate!

- *Readiness*
Educational systems need to be assessed – and re-assessed – for their “readiness” to facilitate interventions of this kind.
- *The model*
An “e-school model” has to be flexible. Experience within the Demo project has shown that, even where general models are useful, they still need to be adapted to local context. As such there, are no clear ‘winners’ or ‘losers’ among the various ICT in schools models implemented by the consortia.
- *Partnership*
The fear that other organisations would be in “competition” with the NEPAD vision was misplaced. Civil society organisations with experience in introducing ICTs in schools should have been welcomed into the partnership at the beginning of the Demo. There should have been more exploration of other ICT-in-schools initiatives going on in Africa. Happily, – albeit belatedly – this is now beginning to happen.
- *Assessing impact*
While it was possible to gain some assessment of the achievement of some of the short term school-based outcomes, the assessment of the long term impact of ICT use on the teaching/learning process and school management in participating schools requires longitudinal study design and a much more empirical assessment model than was possible in the Demo M&E.

Assessment of school-based outcomes

Data were collected before and after implementation of the project through questionnaires completed by students, teachers and school heads, and through school observation visits. The following observations are derived from those data:

- *Impact on students and teachers*
While both students and teachers reported significant increases in their abilities to use basic computer programs, and in their confidence in using the machines, there was little evidence of integrated use of the technologies to enhance pedagogy across the curriculum.
- *Technology*
Teachers and school heads were generally very pleased with the technologies provided, even though most experienced some problems with technical support.
- *Educational software and content*
Teachers and school heads were quite pleased with the training and learning software supplied by the various consortia, and clearly stated that they want more of both! Many teachers expressed that they now realise they can produce their own learning materials.
- *Schools as ICT hubs*
Many of the schools are becoming an ICT resource for the larger community.

1.	GENERAL OBSERVATIONS ON THE IMPLEMENTATION OF THE DEMONSTRATION PROJECT
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It is important to note that *the purpose of a demonstration project is not just to demonstrate, but also to learn from the experience.* The following observations gleaned from the monitoring and evaluations process for the NEPAD e-Schools Demo project constitute an important checklist for the future management and implementation of this and similar initiatives:

- **Managing a public-private partnership of the magnitude of NEPAD e-Schools is a very complex task.**
The Demo involves 16 national governments; five of the world’s largest ICT corporations, partnered with numerous regional and national supporting companies; and a lead agency accountable to the heads of all national governments on the continent. All parties at the beginning of the Demo underestimated this complexity. The Country Liaison Persons (CLPs), the consortia leaders and the eAC staff responsible for the Demo project consistently pointed out in their reports that the challenges of ensuring effective communications, establishing a shared vision and expectations, and holding partners accountable for commitments made were immense and required a much longer time frame than was allowed to be addressed effectively.
- **Providing leadership for such a complex project requires significant fiscal and human resources.**
The eAC was under-resourced for the project management tasks it took on. The eAC was expected to raise the funding it needed to carry out its leadership role, placing it in more of a mendicant position rather than one of leadership. As a result, there was criticism from some of the partners that the eAC was not fulfilling its responsibilities under the MOUs.
- **Leading such a project requires superb project management expertise, extraordinary attention to facilitating communication between the partners and clearly articulated objectives.**
The eAC took a non-directive approach to leading the implementation process. It deliberately did not provide any direction to the consortia about the e-school solution to be provided, wanting instead to see what each consortium would provide as their best model. Further, there were no stated expectations about the implementation process other than that each consortium would sustain the project for a year following implementation. The consortia thought that this laissez-faire approach contributed to confusion about what was expected as well as to very different implementation scheduling among the consortia. They

would have appreciated a more directive approach from the eAC.

- **The post-Demo roles of the e-Africa Commission and the project consortia have evolved as the implementation process proceeded.**

At the outset, the eAC expected it would be in a position to manage the rollout of the e-Schools Initiative in the post-Demo phases and, further, that the Demo would show which of the consortia provided the best e-schools model to select for widespread implementation. But as the Demo proceeded, it became obvious that this one-size-fits-all model did not accommodate the national policies, plans and current initiatives of national governments, many of which already had ICT-in-schools programmes underway. It also became evident that the corporate consortia leaders, and many of their constituent members, would continue to be involved with African countries regardless of the NEPAD post-Demo initiatives. While it is acceptable, and often advisable, for visions and expectations to change during a demonstration project, the changes need to be discussed and communicated. There were not effective communication networks in place to do that.

- **Inclusion needs to be a core principle in projects that have multiple partners, each with their own *raison d'être*.**

The Demo implementation process did not initially encourage the involvement of the many civil society organisations that play an important role in introducing ICTs in schools throughout Africa. According to the eAC staff managing the Demo, this was partly due to the belief that doing so would further complicate an already complex project. But it was also the result of not being initially aware of the extent that ICT activity in schools was already underway and the organisations involved. Indeed, in several countries the Demo project is dwarfed by the scope of such activity and by the initiatives of the countries themselves.

- **The implementation experience highlighted the need for countries to ensure adequate leadership for complex initiatives of this nature.**

This needed to include:

- (a) A locus of leadership for project co-ordination that has sufficient authority and resources for the task;
- (b) The appointment of a national implementing team to assist the CLP to carry out the assigned tasks; and
- (c) An understanding of the project among key ministries of government, particularly those involved with national ICT and procurement policies. (There were many examples where implementation bogged down in the procurement policies of Ministries of Finance because of a lack of support for, and understanding of, the Demo project.)

- **There was considerable variance among the corporate leaders leading the participating consortia in their perception of the purpose and duration of the Demo, and, in their commitment to it.**

It is important to note that the implementation of the Demo has taken much longer than the one-year initially expected and has been very uneven across the participating countries. The reasons for this ragged-edged implementation were described in the two internal interim reports to the eAC, which included recommendations for action by the eAC.

Obviously the responsibility for the protracted and uneven implementation of the Demo cannot be assigned to any one of the major project partners. With the benefit of hindsight, they would all probably do some things differently. However, *many of the issues that have arisen could have been mitigated had the project begun with a comprehensive review of lessons learned from other projects involving the introduction of ICT in schools in Africa and from initial research about the policies and plans of national governments and the initiatives currently underway in the countries selected to participate in the Demo project.*

2.

SUMMARY OBSERVATIONS

The following summary observations and comments are made concerning the achievement of the specific objectives that were set for the Demo, key assumptions that have impacted the implementation of the project, constraints and challenges faced during implementation, project impact on participating schools and project impact on ICT in education policy developments.

Demo Project Objectives

The following summary observations and comments are made on the achievement of the specific objectives that were set for the Demo, bearing in mind that the project is not yet complete.

***Objective:** To determine typical e-school scenarios and requirements in various circumstances in Africa*

What emerges from the Demo project data, as well as from global research, is that trying to define “typical e-school scenarios and requirements” that can be generalised with any validity is not possible where there are such huge variances in cultural and socio-economic contexts as is the case across a continent as diverse as Africa. There needs to be a local analysis of the context within which an ICT initiative is introduced based on factors that have been shown to influence the probability of the intervention being successful, including:

- National development and educational goals
- National ICT in education policy framework and implementation plans.
- Level and commitment of leadership for the initiative.
- Commitment to gender equity.
- Adequacy of infrastructure and access to it.
- Opportunities for collaboration with other organisations.
- Adequacy of human resource capacity.
- Adequacy of fiscal resources.
- Availability of appropriate learning content.
- Government procurement regulations.
- Teacher, student, administrator and community attitudes towards ICT use in education.
- Sustainability of the initiative.

Objective: *To highlight the challenges inherent in a large-scale implementation of e-schools programmes*

Objective: *To monitor the effectiveness of multi-country, multi-stakeholder partnerships*

These two objectives turned out to be closely related. Both of these objectives appear to have been well satisfied since they have been the focus of the two internal interim reports. A detailed summation of the observations about the challenges is provided in this report, under the heading “Implementation of the Demonstration Project.” However, while recommendations for meeting the identified challenges were outlined in the first and second interim reports, they have not been effectively acted on.

Objective: *To determine “best practice” and exemplary working models for the large-scale implementation of the NEPAD e-Schools Initiative, which aims to equip more than 550,000 African schools with ICTs and connect them to the Internet.*

The inherent notion behind this objective is that the e-school models implemented by the various consortia would be assessed, and those judged to demonstrate “best practice” would receive some sort of preferred status as providers in subsequent phases of the NEPAD e-Schools Initiative. While there have been data collected and reported on the models and performance of the consortia during the implementation process, this objective has not been fully satisfied and is not likely to be by the end of the Demo phase.

Objective: *To demonstrate the costs, benefits, appropriateness and challenges of a satellite-based network.*

While the eAC has certainly been actively investigating the technical specifications and the means to make them operational, no such network has yet been available to the schools involved in the Demo; therefore, it has not been part of the monitoring and evaluation process. That said, the lack of affordable access to the Internet has been consistently identified as a serious challenge to the sustainability of the e-school models that have been implemented. Finding a solution to that challenge is of continuing importance.

Objective: *To demonstrate the costs, benefits and challenges of ICT use in African schools.*

The part of this objective relating to demonstrating benefits and challenges of ICT use in African schools has been well met. That said, and as experience from other initiatives in Africa and around the world has shown, many of the intended benefits of an initiative such as this can only be realised over time (if they are to be realised at all). Cost-benefit analyses have not been done. Cost-benefit studies of ICT interventions in the education sector can be difficult even in the best of circumstances, but, within the context of the Demo project, it was never made clear to the consortia that providing cost data was expected. As a result, these data were for the most part unavailable to the M&E team. (One consortium did provide a

gross estimate of direct and indirect costs of USD \$4 million to implement its model at the assigned schools – a large and noteworthy, albeit unverified, figure, given the small size of the Demo.)

Demo Project Assumptions

The objectives and implementation of the Demo were based on a number of assumptions – some explicit, and some only identified during the monitoring and evaluation process. Several of the assumptions, such as the importance of partnerships with the private sector and building in an arm’s-length monitoring and evaluation process, were laudable core components of the conceptual plan for the Demo project. However, several other assumptions that influenced the design and implementation of the Demo have turned out to be false. The lessons learned from these false assumptions are discussed here.

The Assumption: *A Demo was needed to understand “best practices” for introducing ICT in schools.*

The Reality: *While much is still to be learned, we are not starting from scratch*

One of the consortia pointed out during the first round of interviews with the M&E team that its members felt that a ‘demo project’ was superfluous because a large knowledgebase on best practices and lessons learned on the use of ICT in schools already exists – much of it African-based, compiled by organisations such as SchoolNet Africa and the South African Institute for Distance Education. While it is clear that there is still much to learn about the process of introducing ICTs in schools in African contexts, had the planning process for the e-Schools Initiative started with a review of the relevant existing literature, the consortium felt it may have facilitated a more value-added approach.

The Assumption: *The eAC could raise sufficient funds from donor sources to enable it to carry out its project management role for the e-Schools Initiative and the Demo project specifically.*

The Reality: *eAC leadership of the project suffered greatly from a lack of adequate resources.*

It was evident, and reported, very early in the Demo project that the lack of resources was seriously constraining the ability of eAC to carry out its mandate. However, the matter was not effectively addressed. As a result, the eAC came under severe criticism from many of its partners for not providing the leadership needed.

The Assumption: *The e-School models implemented by the various consortia could be fairly and reliably assessed, with the consortia judged to have demonstrated the “best practice” receiving some sort of preferred status as the service providers in the subsequent phases of the NEPAD e-Schools Initiative.*

The Reality: *This has not (yet) occurred, and it is unclear if it will occur.*

resources.

Without commenting on the merits of doing such a comparison, the validity of the assumption was seriously compromised by several factors, of which the following are but examples:

- The assignment of schools to consortia was not random.
- There were several instances of inter-consortium collaboration in both the design of the e-school model as well as implementation strategies.
- There were many examples of cross-consortium membership, particularly in the areas of content providers and teacher training organisations.
- There were no common guidelines for implementation time frames.

Even if such a comparison *had* been possible, the assumption that eAC would be in a position to broker business to providers on behalf of donors and countries appears improbable.

The M&E team was not able to identify how this assumption – widely-held among consortium members – was arrived at, or how it was communicated to and among project partners. Initial interviews with consortia members clearly indicated that this was one of the reasons – for some the only one! – for agreeing to becoming involved in the Demo. Nevertheless, the consortia perceived that the ground rules had changed without their involvement when it became evident that this assumption was not likely to hold.

The Assumption: *The Demo project would be a new ICT- in-schools initiative in the participating countries.*

The Reality: *Much was already happening in all participating countries.*

This was perhaps the least explicit of the assumptions. It is mentioned here only to highlight the fact that, had the planning for the Demo begun with an analysis of the extant plans and programmes of the Ministries of Education and the myriad ICT in schools projects already underway through NGOs, faith-based organisations, donors and the private sector, there would surely have been a more collaborative and added-value strategy. Perhaps the fact that this did not occur is related to the next assumption.

The Assumption: *Civil society organisations involved in ICT in schools projects would compete with the NEPAD e-Schools Initiative and therefore should be kept at arm's length from the process.*

The Reality: *Civil society was eager to cooperate.*

It is unfortunate that this assumption guided relationships between eAC and organisations like the Global e-Schools, SchoolNet Africa and World Links during the planning of the Demo and the early stages of its implementation. The experience of these and other organisations would have been useful. Happily, this is changing.

A workshop held in September 2006, sponsored by IDRC, brought practitioners together with eAC staff and some consortia members to reflect on how the experience of civil society organisations could enhance future phases of the e-Schools Initiative.

Unanticipated Outcomes

With any project, there are unexpected outcomes that often turn out to be as, or more important than, the project's 'expected' outcomes. The Demo project is no exception, as the following points illustrate:

- *Impact on government awareness of ICT/education issues*
The Demo is having a major impact on government awareness of the importance of adopting ICT into their strategic educational plans and, in concrete terms, their awareness of the art of the possible. This includes not just first-hand experience with state-of-art technology but also a practical approach to the issues of sustainability. Supporting evidence for the latter is that Ministries of Education are working with the schools to develop sustainability strategies in collaboration with the larger communities where these schools are located.
- *Impact on policymaking*
The most specific evidence of the Demo's impact on Ministries of Education is the surge of development of ICT-in-education policies, as cited by participating Ministries during the Demo's M&E activities. This is particularly the case in countries that are less advanced in the deployment of ICT in education. The effect is less noticeable in countries such as South Africa and Egypt that have policies and programmes in place and large-scale deployment of ICT in schools.
- *Public-private partnership models*
The public-private partnership model initiated by the eAC has been replicated in at least one country (Kenya) and is being considered in some others.
- *Local partnerships*
Several of the consortia have planned, either from the outset or as a result of their participation in the project, to implement their e-school model by involving local partners. This is proving to have a major effect on the ease and efficacy of providing support to teachers.
- *Community impact*
The impact of the Demo school in the local community is much more profound than was anticipated. Teachers from neighbouring schools with no ICT facilities are being trained to use the Internet at the Demo school so they can locate learning resources. Community groups are being encouraged, for a fee, to use the school as a "learning centre" during non-school hours. As well, parent-teacher associations are involved in helping to maintain the facility.

Constraints and Challenges

Several specific developments have constrained the Demo implementation process. The following have been particularly significant:

- *Project management*
The Demo project manager resigned in January 2006 to join one of the private sector consortia members and there was a delay of several months before a replacement was appointed. Given that the eAC leadership team for the Demo was already understaffed and without adequate resources for its mandate, this meant that momentum was lost at a point when the other partners, particularly the consortia, were requesting that the eAC provide more direct leadership.
- *Business plan*
The original intention was that a business plan for subsequent phases of the e-Schools Initiative would be completed well before the end of the Demo. This did not happen because the funds to commission the work had to be raised and this took much longer than expected. As a result, the eAC has not been in a position to promulgate a vision for the future – something that all stakeholders were expecting and that is sorely needed.
- *Communication and coordination*
Implementation of the Demo has been delayed in several countries for a variety of reasons related to project management, with significant negative impact on the project. Had there been an effective communication process that enabled stakeholders to discuss problem issues, and reasons for resulting delays, these would have been mitigated to a considerable extent in many cases.
- *Suitability of demo models for future wide-scale roll-out*
Several Ministry of Education officials expressed the opinion that the capital and maintenance costs of the models implemented by the consortia will constrain their widespread adoption in the post-Demo phase. They indicated that the models would need to be scaled down to a “sustainable level” (although no threshold for ‘sustainability’ was provided).

Impact on Schools

One of the first tasks undertaken by the NEPAD e-Schools planning group was to reflect the broad objectives of the e-Schools Initiative in a set of six specific outcome statements. It then developed measurable indicators for each of these outcomes. A full description of these outcomes and indicators is provided in Appendix B. Data relative to the indicators were collected from teachers, students and school heads before the start of the Demo and 18 months later at those schools that had been fully implemented for a period of three months.

The principal findings from these *ex ante* and *ex post* comparisons with respect to each of the outcomes are as follows:

- *Student perceptions*
Students perceived that their ability to use e-mail, word processing and web browsing increased.
- *Teacher perceptions*
Teachers felt that their IT skills increased, as did their confidence in using the technology.
- *Student-centered learning*
There was little indication of a shift toward a more student-centered learning environment, a common goal of many ICT initiatives in schools. Global experience suggests that the integrated use of ICT in pedagogical practice needs much more incubation time, better access for individual learners, more operational reliability and much more training and support before this outcome can be achieved.
- *School perceptions*
Schools were generally very pleased with the ICT models, training and content materials provided by the consortia. However, the repair and maintenance support was often lacking – particularly in those instances where the implementation did not occur in collaboration with a local company.
- *Sustainability*
While the post-Demo sustainability of the models implemented is a concern for most schools and ministries of education, sustainability plans are being developed both at school level and within the ministries.
- *Community interactions*
Increased and positive interactions between schools and their neighboring communities were one of the most encouraging, and unanticipated outcomes of the Demo. These interactions included training teachers at neighboring schools to use the Demo school facilities, providing ICT services for the public, and encouraging public use of the schools as e-learning centres. (In two instances, a community group stated that they now had access to a “library” in their community for the first time!)

It should be noted that these sorts of preliminary findings are drawn from a very small sample size, and results have not been controlled for a wide number of potentially confounding variables. These findings are generally consistent with those from similar ICT interventions in schools – especially in pilot projects within Africa and around the world.

Impact on ICT Planning and Policy Development

The implementation of the Demo has coincided with a general surge of awareness among governments throughout Africa regarding the growing importance of ICT in overall socio-economic development (ICT4D). This, coupled with a perceived urgent need to ensure the development of ICT skills in the labour force, has served to create an environment in which sector-level ICT policies are being fostered – particularly in education. The following observations provide some indication of the impact of the Demo in this environment:

- *Education sector policies*
The Demo is reported to have had a catalytic effect on education sector policy development, particularly in those countries where the Demo has been fully implemented and where an ICT-in-education process had not been under way before the Demo was introduced.
- *Funding issues*
The Demo has also brought funding issues to the forefront for both ministries and schools. A result has been that, in some ministries, budget priorities have been adjusted in order to support ICT development, and, at the school level, strategies are emerging to generate revenues to sustain the costs of connectivity, maintenance and to cover the cost of consumables.
- *Total cost of ownership*
Some ministries have had to start calculating the total cost of introducing ICT in schools, realising that the cost of the equipment is small relative to the costs of maintenance, connectivity, teacher training and, content development.
- *Public-private partnership (PPP) models*
Several countries – Kenya is an example – have replicated the model of the PPP established by the eAC to support the e-Schools Initiative in the form of trusts, through which investment is both encouraged and prioritised with all public, private and civil society stakeholders involved.
- *ICT leadership*
With respect to the management of policy implementation, the Demo has necessitated the designation of a locus for leadership re ICT deployment in schools in those ministries where none existed before.

3.

RECOMMENDATIONS FOR THE E-AFRICA COMMISSION

Learning from the NEPAD e-Schools Demo

The implementation of the NEPAD e-Schools Demo project has caused the e-Africa Commission to reconsider the nature of its leadership role in achieving the goals of the larger NEPAD e-Schools Initiative. According to eAC staff interviewed, there is a realisation that the original concept of the contribution the eAC could make to the implementation of the e-Schools Initiative must be reformulated. The following points should be considered as this occurs:

1. *Ensure that planning is based on an awareness of global “best practice” regarding the adoption and diffusion of ICT in education, the development of sharable digital content, and teacher-training standards.*
2. *Develop strategies to take advantage of the operating models that the consortia have put in place in collaboration with the host countries.*
These models are the most observable legacy from the Demo and they can provide a continental platform for ongoing demonstration and research if they are maintained and kept current with developing technology.
3. *Review the stakeholder base, with a view to including civil society organisations that have demonstrated commitment to the e-schools vision.*
4. *Ensure that eAC’s stated commitment to continue the M&E process is honoured and that arrangements for doing this are put in place immediately.*

4.

CONCLUDING REMARKS

While the implementation of the NEPAD e-Schools Demo Project to date has been uneven and behind schedule, the vision and objectives of the initiative continue to be of critical importance to schools across the continent. Shafika Isaacs, the founding executive director of SchoolNet Africa and a member of the monitoring and evaluation team, addressed this point in the second interim internal report. Referring to the many ICT in schools activities underway across the continent, she said:

“Amidst this myriad of interventions, programs, experiments and innovations taking place in almost all African countries, sits the NEPAD e-Schools Initiative....Never before has there really been a program that mobilised national government participation and leadership at the official continental level in the way the NEPAD e-Schools vision has. Further it has brought the private sector into partnerships that, while experiencing growing pains, has mobilised resources in a way that few other projects have been able to do. And there is much yet to learn about doing this in an optimal way.”

The vision may well have exceeded the practical bounds of its reach within the expected timeframe of the Demo project, but NEPAD e-Schools remains a ‘work in progress’, in which lessons are being learned and applied and the catalytic effects of the Demo on schools, communities and Ministries of Education are already evident.

A.

Appendix: Assignment of Consortia to Countries and Schools

Country	School	Consortia
Algeria	Lycée Draa Mohamed Sadek	Cisco
	Lycée Abdelhak Benhamouda	
	Lycée Bouchoucha	
	Lycée Cité Olympique	
	Lycée Abderrahmanr Ben Ouf	
	Lycée Ben Sahnoun El Rachedi	
Burkina Faso	Lycée Provincial de Ziniare (Launch School)	HP
	Lycée Yadega	
	Collège d'Enseignement Général (CEG) de Pobe Mangao	
	Lycée Untaani	AMD
	Lycée Provincial de Boulsa	
	Collège d'enseignement général de Komtoega	
Cameroon	Government High School, Buea - Bokwango	Microsoft
	Government High School, Mvengue	
	Lycee Classique d'Edea	
	Lycee Technique de Bamenda	AMD
	Government Bilingual Secondary School, Bafia	
	Government Secondary School, Mbansan (Launch School)	
Egypt	El Moqta Secondary Mixed School	HP
	Omaer Ibn Abd El Aziz Elsalaa Secondary School	
	Elhadin Secondary School (Launch School)	
	El Ghrfa El Tegaria Secondary School	Oracle
	Sobeih Secondary School	
	Elwesam Experimental School	
Gabon	CES Lucien NKOUNA-Bongoville (Launch School)	AMD
	CES Edouard MOSSOT-Moabi	
	Lycée Paul Marie YEMBI NDENDE	
	CES André Gustave ANGUILE	Oracle
	Lycée Richard NGUEMA BEKALE	
	CES Mouapa BEOTSA	
Ghana	Acherensua Secondary school	Oracle
	Ola Girls Secondary School (Launch School)	
	Akomadan Secondary School	
	Walewale Secondary School	Cisco
	St Augustine's Secondary School	
	Wa Secondary School	
Kenya	Mumbi Girls secondary	Oracle
	Menengai Mixed secondary	
	Isiolo Girls Secondary School (Launch School)	
	Maranda High school	Microsoft
	Chavakali High School	
	Wajir Girls secondary	

Country	School	Consortia
Lesotho	Lesotho High School (Launch School)	Oracle
	Bereng High School	
	St. Cyprian's High School	
	Sechaba High School	Microsoft
	Qacha's Nek High School	
	Sefikeng High School	
Mali	Lycée Fodie Maguiraga	Oracle
	Lycée Bocar Cisse	
	Lycée Alfred Garcon	
	Lycée Mamadou Sarr	AMD
	Lycée Attaher Ag Illy	
	Lycée Dowele Mariko	
Mauritius	Belle Rose State Secondary School	Cisco
	Windsor College	
	Ambassador College	
	Rose Belle High School	Microsoft
	Mon Lubin College	
	MEDCO (Cassis) Secondary School	
Mozambique	Escola Secundaria deEmilia Dausse	Microsoft
	Escola Secundaria de Angoche	
	Escola Secundaria de Cuamba	
	Escola Secundaria de Vilanculos	HP
	Escola Secundaria Joaquim Chissano	
	Escola Secundaria de Gurué	
Nigeria	Federal Government Academy Suleja (Launch School)	Microsoft
	Federal Government Girls College Bakori	
	Federal Government Girls College Owerri	
	Federal Science & Technical College Uyo	HP
	Federal Science & Technical College Lassa	
	Federal Government College Odogbolu	
Rwanda	Collège St André	Cisco
	G.S. Muhura (Launch School)	
	Lycee de Zaza (in Kibungo-Zaza-Ruhembe)	
	Collège Christ-Rois de Nyanza (in Nyanza-Mugozzi)	Microsoft
	Ecole Secondaire St Francois de Shanghi	
	ESSA-Gisenyi	
Senegal	Lycée De Niakhar (Launch School)	MS/Cisco
	Lycée WAOUNDE NDIAYE	
	Lycée DE DAHRA	
	Lycée DE BARGNY	AMD
	Lycée IBOU DIALLO	
	Lycée ALINE SITOIE DIATTA	
South Africa	Hendick-Makapan High School	HP
	Lomahasha Secondary School	
	Maripe Secondary School (Launch School)	
	Ipetleng Secondary School	Oracle
	Thozamisa High School	
	Isiphosethu High School	
		Cisco

Country	School	Consortia
Uganda	Bugulumbya Secondary School (Launch School)	HP
	Kabale Secondary School	
	Masaka Secondary School	
	Kyambogo College School	AMD
	Bukuya Secondary School	
	St. Andrew Kaggwa Senior Secondary School, Kasaala	

Source: Data provided by the NEPAD e-Schools Project Manager, 16 March 2007

B.	Appendix: NEPAD e-Schools Outcomes and Impact Indicators
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NEPAD e-Schools Outcomes	Impact Indicators
<p>1. Students</p> <p>Through the use of ICT:</p> <ul style="list-style-type: none"> • Develop appropriate level of ICT capability • Become more engaged in own learning 	<ul style="list-style-type: none"> • Demonstrate proficiency in the use of ICT for:* word processing spreadsheets basic e-mailing basic Internet browsing presentation tools graphics. • Use ICT to collaborate, publish and interact with peers, experts and other resource people.* • Use ICT to locate, evaluate and collect information.*
<p>2. Learning environments</p> <p>ICT is used to support constructivist teaching that is more:</p> <ul style="list-style-type: none"> ▪ Learner-centred ▪ Knowledge-centred ▪ Assessment-centred ▪ Community-centred. 	<ul style="list-style-type: none"> • Students use ICT to investigate the real world and build a wider, deeper knowledge base.* • ICT enables students to be active as participants in their own learning.* • The interactive, multimedia and communication characteristics of ICT are used to enhance student motivation.* • ICT is used to foster collaboration and co-operation among students and more interaction with teachers.* • ICT is used to support more individualised learning (at the students' own pace).* • ICT is used to provide learning experiences and allow students to progress at their own pace.* • ICT tools are used to increase student productivity.* • Students engage in higher levels of thinking such as application, analysis and synthesis. • Adaptive technologies are used to enhance learning for students with physical disabilities.

<p>3. Teacher ICT competencies</p> <p>Teachers are competent to apply ICT in order to:</p> <ul style="list-style-type: none"> • Support students (with respect to learning activities) • Create a constructivist learning environment • Contribute to the relevant learning communities 	<p>Teachers are:</p> <ul style="list-style-type: none"> • able to teach students how to use available hardware devices safely* • able to use and apply basic software programmes in the context of their teaching* • able to use ICT to improve their professional and administrative proficiency* • able to use the Internet to locate additional learning resources to enrich the curriculum* • able to use ICT to facilitate a variety of assessment and evaluation strategies* • aware of health, legal and ethical issues with regard to the use of ICT* • able to plan and design learning experiences supported by ICT with a special reference health topics* • able to collaborate with other teachers internally and externally to their school* • able to develop digital content teaching materials on their own.
<p>4. School ICT capacity</p> <p>All teachers and students have immediate access to:</p> <ul style="list-style-type: none"> • The hardware and software necessary to support the curriculum • The support necessary to enable its use. 	<ul style="list-style-type: none"> • Teachers and students have ready legal access to a range of appropriate content software.* • Students and teachers have ready access to ICT hardware.* • Effective policies are in place for the management of hardware resources.* • Teachers and students have access to online services such as Internet and e-mail.* • Teachers and students have access to technical support when required.* • There is management and co-ordination of digital resource materials across all learning areas.*

<p>5. School environment</p> <p>The school environment is supportive of teachers' and students' use of ICT based on a shared, community-based vision that prepares students to learn, work and live successfully in a knowledge-based, global society</p>	<ul style="list-style-type: none"> • National policies and long-term plans are in place to promote and support and use ICT in schools.* (Note: These should be shared via the portal that is to be established by the Demo manager.) • Pedagogical school policies encourage students to reach out beyond the classroom.* • Curriculum support personnel are available to assist teachers to integrate ICT in the learning and teaching process.* • School policies and processes engage parents, community members, school staff and learners in interactions and partnerships that advance the use of ICT in schools.* • Schools collect and analyse data regarding the use of ICT to inform decision-making.
<p>6. Health Point</p> <p>The Health Point is a unit to be developed within each school through which to:</p> <ul style="list-style-type: none"> • Provide access to health information to children, parents and health workers (especially in rural areas) • Promote healthy living and awareness of health issues to the wider community. 	<ul style="list-style-type: none"> • Health education is promoted in schools via print and ICT-related methods including broadcasting. • A health portal is available to health workers and the wider community. • Mass media are used to promote healthy living and to provide health related information on topics such as HIV/AIDS and malaria.

**Indicators that were expected to be achieved during the Demo.*

About the Commonwealth of Learning

The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning/distance education knowledge, resources and technologies. COL is helping developing nations improve access to quality education and training.

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About *infoDev*

infoDev is a partnership of international development agencies, coordinated and served by an expert Secretariat housed in the Global ICT Department (GICT) of the World Bank, one of its key donors and founders. It acts as a neutral convener of dialogue, and as a coordinator of joint action among bilateral and multilateral donors—supporting global sharing of information on ICT for development (ICT4D), and helping to reduce duplication of efforts and investments. To this end, infoDev sponsors cutting-edge research and analysis to help identify global best practice in the use of ICT4D.

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