Republic of Mozambique
Ministry of Science and
Technology

United Nations Development
Programme

MINISTRY FOR FOREIGN
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ICT Advisor Project

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Contents

List of Acronyms

ANFP   National Authority for Public Service between Finland and Mozambique

CCA   Common Country Assessment

CMC   Community Media Centre

CNCS   National Council for the Fight Against HIV and AIDS

CPAP   Country Programme of Assistance

CPAP   Country Programme Action Plan

CPRD   Provincial Digital Resource Centre

DISI   Directorate for Infrastructures and Information Systems

ICT   Information Communication Technology

INISS   National Institute for Social Security

IT   Information Technology

MDG   Millennium Development Goal

MEGCIP   Mozambique e-Government and Communication Infrastructure Project

MHIN   Mozambique Health Information Network

MICTI   Mozambique ICT Institute

MINEC   Ministry of Foreign Affairs

MoRENET   Mozambique Research Network

MOSTIS   Mozambique Science, Technology and Innovation Strategy

NUIC   Unique Citizen Identity Number and Population Registry

OECD   Organisation for Economic Co-operation and Development

PARPA   Mozambique's Action Plan for the Reduction of Absolute Poverty

S&T	Science and Technology
STI	Science, Technology and Innovation
STIFIMO	Programme of Cooperation in Science, Technology and Innovation
UNCT	United Nations Country Team
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UTICT	Technical Unit of the ICT Policy Commission
UTRESP	Technical Unit for the Public Sector Reform

Executive Summary

Since the signing of the peace agreement in 1992, Mozambique has become one of Africa's success stories of post war reconstruction, socio-economic development and political stability and reform. Between 1995 and 2006 real GDP growth averaged 8.5%, placing it amongst the highest GDP growth rates in Africa.

Despite the impressive macroeconomic growth, Mozambique remains one of the poorest countries in the world and is ranked 168th out of 177 countries in the 2005 Human Development Index.

To deal with the endemic poverty and limited human and institutional capacity Mozambique's development policies have shifted from sector-oriented interventions to integrated programmes, which recognise the importance of crosscutting tools, such as information and communication technologies (ICT).

Mozambique's focus on ICTs came from the realisation that they can play a key role in development and poverty reduction and in promoting economic growth. ICTs can also make it easier for the voices of the poor to be heard in decisions that shape their lives.

ICT Advisor Project

Between 2006 and 2010, UNDP, with financial support from the Government of Finland, was implementing the "ICT Adviser for the Minister of Science and Technology (MCT)" Project. The General Objective of the project was to provide support for decision-making and capacity building in the area of ICT in the MCT by providing technical assistance in the form of an Adviser to the Minister.

Purpose of the Evaluation

The overall purpose of the evaluation was to assess and determine the continued appropriateness and relevance of the ICT Advisor Project in the Ministry of Science and Technology, which ended in 2010.

Scope of the evaluation

The scope of the evaluation was to assess the ICT Advisor Project in terms of its efficiency, effectiveness, appropriateness, relevance, impact and sustainability.

Methodology

The evaluation methodology included both a desk review and field work.

Findings

The ICT Advisor Project was highly successful and achieved most what it set out to do, which was to create a sound infrastructure base for ICT in Mozambique and to build the necessary institutional capacities to carry the project forwards.

The Advisor was responsible for the setting up of the Mozambique Research Network (MoRENet), the Mozambique e-Government and Communication Infrastructure Project (MEGCIP) and the Science, Technology and Innovation Program. The Advisor also negotiated a software agreement with Microsoft Corporation and redesigned the Media Communication Centres (CMCs).

The Project was relevant as the activities carried out were part of the ICT Policy Implementation Strategy. The Project was also in line with the PARPA II and with the UNDAF. The ICT Advisor filled a critical capacity gap within MCT through the advice he gave to the Minister and also by providing the skills to translate ideas outlined in the ICT Policy and Implementation Strategy into concrete projects. The Project enhanced the capacity of MCT by mobilising resources to enable the Ministry to hire and retain key staff and to continue to implement the projects after the Advisor left.

The Advisor Project was effective as key staff in the MCT benefitted from the Advisor's innovation, skills and experience. Raising $60 million for various ICT projects demonstrated the Project's effectiveness. But taking a longer term perspective, the effectiveness of the various initiatives can only be measured by how the projects deliver the expected results. While the Project laid the foundation for the achievement of results, it is how other aspects of the projects are implemented that will determine whether they are effective.

While it might be too early to comment on the impact of the project, indications from some of the projects show that they are already making an impact. For instance, students at several tertiary institutions in Maputo are linked up to MoRENet. Communities in some areas are benefiting from services from the CMCs and the e-government programme has improved access to government information.

Project sustainability was achieved at two critical levels – the skills base that was developed within MCT and the resources that were mobilised to ensure that the projects continue after the Advisor left. But looking into the future, MCT and other stakeholders involved in the programme should be aware that because ICT moves fast, they should constantly review the projects that were initiated under the ICT Advisor Project for their continued relevance. Failure to do this will result in a waste of resources due to their failure to deliver.

A weakness of the project however is that it was not institutionalised within MCT. This created a gap when the Advisor left which has been difficult to fill. Although the Advisor built capacities within the Ministry of Science and Technology, a more deliberate effort should have been made to pair him with Mozambique nationals on some of the initiatives in order to build local capacity and enhance long term project sustainability.

Going forwards

The success of the Advisor Project and its long-term impact will depend on how the projects he initiated are implemented. ICT changes rapidly so there will be need to keep a constant watch on new developments and adapt the programmes accordingly. As the private sector invests in ICT, the government's role should shift from being the provider of ICT to a facilitative role.

There is also need for future investment decisions to take into considerations developments in the mobile phone penetration in Mozambique and the broadening scope for its use in other development applications. Also critical is the need to factor in sustainability in all future ICT investments, particularly those designed for poor communities that cannot afford to pay for commercial services to ensure that they

are appropriate, relevant and can be maintained without continued recourse to donor funding.

Recommendations

- There is need to build the basic human resource infrastructure in Mozambique on which ICT will be grounded. This will entail a greater focus first and foremost on raising the literacy levels in the country by increasing primary school enrolment and through adult literacy programmes and by intensifying ICT training both in schools, tertiary institutions and in workplaces to create a pool of ICT skills to take the country forwards in its development

- MoRENet and the CMCs are still in their pilot phase. The government should take advantage of this to invest more resources into the pilot so that it can determine their potential fully before the roll out and also to iron out glitches in the systems.

- The government should put in place supporting infrastructure, such as electricity and roads to improve the effectiveness and impact of projects such as MoRENet, e-Government and the CMCs.

- As the MCT rolls out the CMCs, it is critical to get community buy -in and also to design relevant projects by consulting communities widely on the project. This will ensure that the facilities that are provided and the content that is developed are relevant to the people's needs.

- Rapid developments in mobile cellular technology have created new opportunities to reach a larger number of people in remote areas at a lower cost. Mozambique should explore some of the more cost effective alternatives offered by mobile phones.

- There is need for wide consultations with stakeholders before projects are initiated to ensure their buy-in and that the initiatives meet the needs of the beneficiaries.

- Although the Project was successful, it was not institutionalised in the Ministry so that when the advisor left a gap was created that has been difficult to fill. In future there would be need to institutionalise the position by attaching at least two other people to work with the advisor on a daily basis. This would build local capacity and increase project sustainability and ownership.

- UNDP should improve its procurement procedures to make them faster so as to better facilitate programme implementation.

1.0 Introduction and Background

Since the signing of the peace agreement in 1992, Mozambique has become one of Africa's success stories of post war reconstruction, socio-economic development and economic, social and political stability and reform. Between 1995 and 2006 real GDP growth averaged 8.5%, reaching 7.6 billion USD in 2006 (up from 2.4 billion in 1997), placing it amongst the highest GDP growth rates on the African continent.[1].

Despite the impressive macroeconomic growth and the reduction in poverty levels achieved during the past decade, Mozambique remains one of the poorest countries in the world[2] and is ranked 168th out of 177 countries in the 2005 Human Development Index. The 2005 MDG Progress Report for Mozambique indicated that of the 18 MDG targets, only five have the potential of being met by 2015 – those relating to poverty, under-five mortality, maternal mortality, malaria and the establishment of an open trading and financial system. Mozambique relies heavily on international development assistance in its fight against poverty. Net official development assistance (ODA) averaged $1.1 billion in the period 1997- 2003, around 31.4 percent of GNI or $61.8 per capita.[3]

To deal with the situation of endemic poverty and limited human and institutional capacity, the Government of Mozambique (GoM) has adopted a number of policies and strategies that take a more innovative approach to development. Mozambique's development policies have shifted from sector-oriented interventions to integrated programmes, which recognise the important role of crosscutting tools, such as science, technology and innovation, including modern information and communication technologies.

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[1] Continental average in 2007 was 6.7% (source IMF)
[2] UNDP Human Development Index 2007/2008
http://hdrstats.undp.org/countries/country_fact_sheets/cty_fs_MOZ.html
[3] UNDP (2007) United Nations Development Assistance Framework 2007 – 2009 (UNDAF)

Mozambique's focus on information and communication technologies (ICTs) came from the realisation that ICTs can play a key role in development and poverty reduction and that they can promote economic growth, expand economic and social opportunities, make institutions and markets more efficient and responsive, and make it easier for the poor to obtain access to resources and services. ICTs can also make it easier for the voices of the poor to be heard in decisions that shape their lives.[4]

> **ICT Penetration in Africa**
>
> Africa lags behind the rest of the world when it comes to internet penetration rates. With an estimated population of 1.01 billion, Africa accounts for just over 110 million of the world's 1.97 billion internet users. High cost is one of the principal factors influencing African internet penetration. In Africa, an internet connection with a speed of 100 Kbit/second costs around US$110 per month, whereas a similar connection will be available for US$20 in Europe. Internet service providers cite infrastructure investment as a reason for maintaining their current price structure. Computer ownership and internet access are still the prerogative of the wealthy few in wide swathes of the African continent, but mobile internet access is on the rise and if current growth rates continue, African mobile phone penetration will reach 100 per cent by 2014. (source: Sarrazin T 2011)

The Government of Mozambique considers ICTs to be priority elements in support of good governance. The government also believes that ICTs can make administrative actions more dynamic and create more efficient methods for facilitating and accelerating change and achieving the goals set for national programs, such as Public Sector Reform and Legal and Justice Reform.[5]

Mozambique's Second National Poverty Reduction Strategy Paper (PARPA II) for 2006-2009 focuses on three priority areas:

(i)   good governance,

(ii)   human capital and

(iii)   Economic development.

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[4] OECD Policy Brief (2003) Integrating Information and Communication Technologies in Development Programmes
[5] Republic of Mozambique (2006) Action Plan for the Reduction of Absolute Poverty 2006 – 2009 (PARPAII), pg 73

In line with the Government thinking on ICT, the Strategy identified science and technology and information and communication technologies as fundamental crosscutting tools for accelerated national development through building communication infrastructure for rural connectivity, e-Governance and strengthening human capital through ICT- based innovations.

The redefinition of Mozambique's strategic vision owes much to the global phenomenon of ICTs which have become the transformative force behind the global socio-economic development, by redefining how countries develop and how public and private services are delivered and also how people communicate and access knowledge and information. [6]

In response to this global phenomenon, Mozambique came up with policy frameworks for Science, Technology and Innovation in the late 1990's. These included the ICT Policy, which was approved in 2000, the ICT Policy Implementation Strategy in 2002 and the National Science and Technology Policy in 2003. [7] The government also came up with the e-Government Strategy[8], which was approved by the Council of Ministers in July 2006. The Strategy has the following three broad objectives:

1. to improve efficiency of the delivery of public services
2. to ensure transparency and accountability of public officials
3. to provide access to information to improve performance of the private sector and to simplify the life of citizens.[9]

Also in line with the ICT strategy, the government identified the development of scientific research systems and national innovation mechanisms as key priorities in the Five Year Plan – PQG (2005- 2009). Efficient innovation mechanisms were recognized to have a direct impact on poverty alleviation and thus contribute to the

[6] Republic of Mozambique (2006) Action Plan for the Reduction of Absolute Poverty 2006 – 2009 (PARPAII),
[7] Ministry of Science and Technology, Mozambique (2008) Concept Paper for Bilateral Cooperation between Finland and Mozambique in the Area of Science, Technology and Innovation
[8] http://www.infopol.gov.mz/pdf/estrag_gov_electronico.pdf
[9] Government of Mozambique (2006) National e-Government Strategy

achievement of PARPA II objectives. PQG also stressed the importance of expanding the national research network throughout the country as well as the importance of collaboration between research institutions and the private sector in support of national innovations and value addition.[10]

ICT Penetration in Mozambique

	2000	2008	2009	2010
Mobile phone subscriptions	51 065	4 405 006	5 970 781	6 770 000[11]
Internet users per 100 inhabitants	0.11	1.56	2.68	
Internet users	10 000 (1999)		613 600[12]	
Radios (1997)	730 000			
Telephones mainline		78 300	82 400	
Fixed broadband subscriptions	0	10 191	12 502	
Mobile broadband	0	0	92 468	
Source for the rest of the figures in the table without footnotes is: Sarrazin T (2011) Texting, Tweeting, Mobile Internet: New Platforms for Democratic Debate, FNF				

Although Mozambique lags behind most of the world in terms of ICT penetration, at national level it has made tremendous progress. Thus for instance, the number of mobile phone users increased from a mere 12 000 in 1999 to 7, 677 000 in 2010, while internet users increased from 10 000 in 1999 to 613 600 in 2009 (see table 1 above).

 But a comparison with the rest of the world shows the extent to which Mozambique still lags behind. Mozambique is ranked 122nd in the world in the World Bank Knowledge Economy Index (5/2008), which measures among other things ICT (telephone, internet and computer penetration). Mozambique ranks 148 in the world In terms of telephone mainline use; 87 for mobile phones and 113 in terms of internet users.[13]

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[10] Min of Science and Technology (2007) Mozambique Research and Education Network
[11] Mobile World
[12] CIA (2011) World fact Book United States Central Intelligence Agency
[13] CIA (2011) World fact Book United States Central Intelligence Agency

Despite these low rankings, special note should be taken of the phenomenal growth in mobile telephone use in Mozambique which has risen by a staggering 13 257.6% in the decade 2000 to 2010. As will be discussed later in the report, mobile telephones have a great potential to provide cost effective ways to respond to Mozambique's ICT needs, especially for the rural poor who cannot afford computers or to pay for commercial internet services.

1.1 Purpose of the Evaluation

The overall purpose of the evaluation was to assess and determine the continued appropriateness and relevance of the ICT Advisor Project in the Ministry of Science and Technology, which ended in 2010.

1.2 Scope of the evaluation

The scope of the evaluation was to assess the ICT Advisor Project in terms of its efficiency, effectiveness, appropriateness, relevance, impact and sustainability, translated into:

- the appropriateness of the design and choice of ICT Advisor project areas of response/programme areas, on the basis of UNDP mandate and comparative advantage;
- the progress towards achieving the stated project outputs, taking into account cross cutting-issues such as human rights, capacity development, institutional strengthening and innovation or value added to national development and make recommendations on the relevance of the outputs accordingly;
- the impact of activities carried out under each of the project components, especially with regards to developing capacity;
- the extent to which the project components have contributed to the achievement of the CPAP objectives and overall support to the operations of UNDP in Mozambique;
- document best practices and lessons learnt in the course of project implementation, including but not limited to, implementation of RBM, resource application and monitoring and evaluation of progress, to inform the development of next CP strategy;

- document and assess the changes in the national development scene and context, including the proposed extension of the CPAP, and their implications for the continued relevance and sustainability of the ICT programmes and projects;

- the appropriateness of implementation arrangements, including but not limited to, organizational structure, managerial support and coordination mechanism used by UNDP to support the project for the effective and efficient attainment of stated objectives and expected results ;

- document challenges encountered and enumerate what needs to be done, how and by who, in order to make the ICT Advisor project more responsive and better aligned to national development priorities while at the same time making greater contribution to the CPAP and ensuring sustainability of the programmes.

- identify operational issues and bottlenecks in the implementation of the project, implementation modalities and frameworks, and advise on any required change in terms of outputs, implementing partners, and allocation of resources and make recommendations;

- Assess facilitation factors for implementation of the project. (see detailed TOR Appendix 3)

1.3   Methodology

The evaluation methodology included both a desk review and field work.

1.3.1 Desk Review

Documents reviewed include the UNDAF, CPD, CPAP, the National Development Plan (PARPA II) and project documents including project progress reports, MCT Advisor Trimester reports, MCT Advisor Annual Workplans, ICT Advisor Project – Tripartite Meeting Minutes, ICT Advisor Project – Activity Reports, ICT Advisor Project and Impact Reports and Annual Work Plans, ICT Advisor Project Summary and (AWP), various concept papers and project proposals. Key government documents reviewed include the ICT Policy and ICT Implementation Strategy as well as the e-Government Implementation Strategy and the Mozambique MDG reports.

The consultant reviewed other documents on ICT and e-government from independent sources to put the Mozambique situation into perspective. (See list of references Appendix One)_____

1.3.2 Field work

Field work was carried out in Maputo and consisted of interviews with key informants, including staff in the Ministry of Science and Technology (MCT) as well as the Minister of Science and Technology himself. Interviews were also conducted with key UNDP staff, including those in the Governance Unit, who were responsible for supporting the ICT Advisor Project. The consultant also interviewed the management staff at the Mozambique Research and Education Network (MoRENet) and from the Institute of Science and Technology as well as the former ICT Advisor in the MCT (who was interviewed by phone) and the former programme officer responsible for the ICT Advisor Project in the Finnish Embassy in Maputo (who responded to written questions from the consultant). (see list of people interviewed Appendix Two)_____

1.4   Limitations of the Study

The major limitation of the study was the special nature of the period when the consultant was in Maputo to conduct the study, which was between the 20th December and the 31st as this coincided with the Christmas and New Year break when most people take time off from work. As a result, the consultant could not interview some of the key people as they were on holiday. These included staff from the World Bank involved in the e-government project and staff at local universities which are linked to MoRENet and other key people in MCT itself. The consultant was also not able to visit project sites, particularly the Community Multi-Media centres (CMCs) to assess the impact of the project on the ground by getting the views and perspectives of the beneficiaries.

However to make up for these shortfalls, the consultant had telephone interviews with some of the people who are no longer available such as the former Advisor and also sent out written questions to the former programme officer at the Finnish Embassy, to which she responded. What the consultant could not make up in terms

of people interviewed was perhaps compensated for by the large volume of documents that he reviewed – in excess of 60 documents, most of them relating d directly to the Advisor Project.

2.0   Findings

2.1   Overall Objective of the ICT Advisor Project

The overall objective of the ICT Advisor Project was to provide support for decision making and capacity building in the area of Information and Communication Technologies (ICT) in the Ministry of Science and Technology.

2.1.1 Specific Outputs

Specific outputs of the ICT Advisor Project were:

- Human capacities strengthened
- Integration of ICTs to Science and Technology Programmes, policies and strategies
- Integration of ICTs to national development programmes, policies and strategies
- Development of ICT framework and e government applications for the government of Mozambique
- Support provided to the formulation of Mozambican ICT Institute and development of current ICT and S&T inclusion
- Implementation of MCT priority projects
- Inclusion of ICTs to poverty alleviation initiatives

2.2   Activities supported by the Advisor

The following section of the report outlines the specific activities that were carried out by the ICT Advisor.

2.2.1 Advisory services to the Minister
- Provision of information to the Minister necessary to support decision making
- Drafting presentations and speeches for the Minister
- Special advisory tasks requested by the Minister, including analysis of strategic documents and proposals drafting

- Participation in the Minister's Advisory team consisting of other advisors and thematic specialists

2.2.2 Capacity Development of the Ministry of Science and Technology

- Development of human capacities of the Ministry of Science and Technology through strengthening the professional capacities of the staff of the directorate for Infrastructure and Information Systems.

2.3 Achievements of the ICT Advisor

The following section of the report outlines the major achievements of the ICT Advisor Project and also illustrates the impact of the project, especially in the areas of capacity building of the MCT and of staff in related projects.

2.3.1 Activities Supported by the Advisor

In addition to advising and supporting the Minister of Science and Technology, the advisor participated in a multitude of projects in and outside the Ministry. The following areas were the main focus of the activities:

2.3.2 Advisory Services to the Minister of Science and Technology

The Advisor provided the Minister with information to support decision-making and drafted speeches and presentations for the Minister. He was also involved in analysis of strategic documents and proposals as well as drafting of concept notes. The Advisor participated in the work of the Minister's advisory team consisting of other Ministers' advisors and thematic groups.

2.3.3 Institutional Strengthening of the Ministry of Science and Technology

The development of human capacities of the Ministry was one of the key priorities for the Advisor, in particular, strengthening the human capacities of the Directorate for Infrastructures and Information Systems (DISI). The Advisor worked closely with the DISI team and drew up a proposal for aligning its operations with other state IT agencies and strengthening its functioning, e.g. by introducing thematic and crosscutting specialist teams.

2.3.4 Advisory Services to Government Institutions

The role of the Ministry of Science and Technology (MCT) cuts across other ministries, so the Ministry supports other government agencies in introducing Science, Technology and Innovation (STI) into their strategies and programmes and in raising awareness about STI in general. In the area of ICT, government capacities are weak, which means that the support provided by MCT to other government institutions was crucial. In this regard the Advisor supported the following ministries:

- Ministry of Education in drafting TORs for a new Distance Education institution
- Development of the project concept for Mozambique Health and Information Network, a cooperation project between MCT and the Ministry of Health (MISAU) a project to build a mechanism and to pilot the collection of national health statistics using cellular networks and PDA's from community health stations to national health authorities.
- Together with the MCT Team, developing business plans and IT architectures for various government institutions, including the National Institute for Social Security (INSS), National Council for the Fight against AIDS (CNCS) and Ministry of Foreign Affairs (MINEC).
- Together with the Technical Unit for the Public Sector Reform (UTRESP) and the National Authority for Public Service (ANFP), advocated for service-oriented e-Government architecture as a fundamental approach to the second phase of Public Sector Reform in Mozambique

2.3.5 e-Government Strategy Implementation

The National e-Government Strategy was approved in July 2006 and the Minister of Science and Technology was appointed to coordinate its implementation. The Advisor participated in the implementation of the strategy together with the then Technical Unit of the ICT Policy Commission (UTICT). The work focused on two flagship projects:

1. Unique Citizen Identity Number and Population Registry (NUIC)

On this project, the Advisor organized a study tour to Finland to study functioning and features of a well-established population registry.

2. Common Communication Platform and Interoperability Framework

The Advisor participated in drawing up the TORs for the Common Communication Platform and Interoperability Framework Project, which ensures improved collaboration and sharing of resources among government departments.

2.3.6 Software agreement with Microsoft Corporation

The Advisor negotiated the first Strategic Partnership Agreement between Microsoft Corporation and a government on the African continent. With other technical staff in the Ministry, the Advisor negotiated and drew up a total of 25 cooperation projects and a comprehensive license agreement with Microsoft Solutions for the Government of Mozambique.

2.3.7 Mozambique e-Government and Communication Infrastructure Project (MEGCIP)

The Advisor was appointed the coordinator of the preparatory phase of the US$31 million World Bank funded MEGCIP initiative until the project was approved in May 2009. In this capacity, he was responsible for the management and planning of the preparatory missions, consultancies and negotiations between the Government of Mozambique and World Bank.

2.3.8 Finnish Government Funded Science, Technology and Innovation Program

The Advisor was also appointed the coordinator during the preparatory phase of the Finnish Government funded Innovation Society Programme of Cooperation in Science, Technology and Innovation between Finland and Mozambique (STIFIMO) project. Activities relating to the preparatory phase included detailed planning and discussions with the Finnish Embassy, as well as ensuring the alignment of project activities with the Mozambique Science, Technology and Innovation Strategy (MOSTIS).

2.3.9 Intel

The Advisor negotiated an agreement with Intel on collaboration projects in Mozambique.

2.4   Planning and Implementation of Strategic Projects

The Advisor participated in the initiation and implementation of several other projects of the Ministry of Science and Technology, including the National Research and Higher Education Network (MoRENet) and the Mozambique Health Information Network (MHIN).

2.4.1 Mozambique Research and Education Network (MoRENet)

The Advisor drew up the technical concept note and project document for the MoRENet and developed partnerships for implementation of the network, interconnecting the national universities and research institutions to one national high capacity network, enabling knowledge exchange and access to global knowledge resources. He also worked on the development of the business and sustainability model for the MoRENet and coordinated the construction of the MoRENet Operating Centre and the first phase wireless network in Maputo city, covering nine institutions. This phase included negotiations with the fibre providers such as TDM and EDM to build the high speed Maputo Gigabit Network and connect MoRENet to regional (UbuntuNet Alliance) and international networks.

Currently 13 institutions in Maputo are interlinked through the aforementioned network, enabling them to access information from each other. Work is ongoing for the design of a national network that will in turn be connected to other African networks under the Africa Connect Project that is funded by the EU. The Advisor also built the capacity of staff who are running MoRENet.

2.4.2 Community Multimedia Centres (CMCs)

The Advisor participated in the redesign of the National Programme for Community Multimedia Centers by extending the original concept of CMC's to become knowledge and service delivery hubs at the district level, which connect local

institutions to each other and to the upstream networks (e.g. GovNet). So far 45 CMCs have been commissioned and are running, providing a wide range of services including internet access, ICT training, printing and scanning services, community radio and also providing a community meeting place.

2.4.3 Mozambique ICT Institute (MICTI)

In addition to above projects, the Advisor participated in the implementation of Mozambique ICT Institute (MICTI) and Technology Development Centre (CDT) projects and the scale up of Community Multimedia Centre Initiative

3.0 Alignment of ICT Advisor Project to other development Initiatives

3.1 Alignment to the ICT Implementation Strategy

From the above, it is clear that the Advisor not only fulfilled what was stipulated in his terms of reference, but that in so doing he went a long way towards meeting the objectives of the ICT Implementation Strategy as most of the activities he was involved in were in line with the strategy. While in some cases, he facilitated the implementation of projects that had been ongoing, in other cases he started projects from the scratch that had been mere ideas on paper – conceptualising them, initiating and implementing the projects. This was particularly the case with MoRENet and with the e-Government project.

3.2 Alignment with UNDAF and with Mozambique's Action Plan for the Reduction of Absolute Poverty (PARPA)

UNDP was appointed the fund manager for the Euro 920 000 ICT Advisor Project because of its pioneering role in ICT in Mozambique. UNDP was the first international Agency to participate in Mozambique's ICT programme when it funded the development of the ICT Policy and later the setting up of the Provincial Digital Resource Centres (CPRDs). UNDP support for ICT was to facilitate Mozambique's decentralisation programme and to improve governance at national, provincial and district levels, by making government services more accessible and giving the poor a voice in their governance structures.

UNDP support to Mozambique focuses on three key areas: Crisis Prevention and Risk Reduction, Poverty Alleviation and Governance. These are areas where the UNDP Country Team has a comparative advantage. The UNDAF 2007 – 2009 is aligned to Mozambique's Poverty Reduction Strategy. As the UNDAF document says: "...as an important step towards the harmonisation and alignment of UN efforts with those of Government and Development Partners, the UN Country Team (UNCT)

agreed not to conduct a Common Country Assessment (CCA), but rather to adopt the PARPA II as its third generation CCA and align the content and cycle of the UNDAF with the PARPA II, developing a three-year framework for 2007-2009".[14]

The ICT Advisor project activities were also aligned with specific UNDAF (2007 – 09) Country Programme outcomes:

1.2 Government capacity in all provinces, at least 50 districts and 3 municipalities (South, Centre and North) improved to implement, coordinate and support the efficient and accountable delivery of integrated basic services
1.2.3 National e-Government platform to support service delivery at provincial, municipal and district level established[15]

The activities of the Advisor in the setting up of the e-Government were also in line with objectives of Mozambique's Action Plan for the Reduction of Absolute Poverty (PARPA) that relate to making government services more accessible and simpler for clients:

   a) to connect all public institutions (from the district up to the central levels) to the government's electronic network
   b) to make information about all public services available in electronic format on the Internet[16]

CMCs – Contributing to the Achievement of the MDGs

The CMCs are strategic institutions that have great potential, for:
   - poverty reduction -- by making appropriate and relevant information available to farmers on crop marketing, and providing information for small to medium enterprises
   - health – by disseminating information on health, including HIV and AIDS – one of the community radios run a successful HIV and AIDS awareness programme, in association with the John Hopkins Centre, which included a

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[14] UNDP (undated) United Nations Development Assistance Framework 2007-2009 (UNDAF), Mozambique
[15] UNDP (undated) United Nations Development Assistance Framework 2007-2009 (UNDAF), Mozambique
[16] Republic of Mozambique (2006) Action Plan for the Reduction of Absolute Poverty 2006 – 2009 pg. 75

phone-in component, where community members could ask questions and get responses – and by running health information campaigns

- governance -- enabling the voices of the poor to be heard through community radio enabling them to participate more effectively in their governance structures
- building human capacity – through e-learning, facilitating adult literacy, teaching ICT skills to youths and other rural communities, providing a meeting place for communities to share ideas

Given these broad functions, it is clear that if the CMCs are run properly, they can play an important role in the achievement of the MDGs.

4.1   Relevance of ICT Advisor Project

Mozambique lags behind the rest of the Southern African region in ICT, partly because infrastructure has not been fully restored from the war years and also because it is a large country which is sparsely populated (relative to its size) making the provision of ICT by the private sector into the hinterland not attractive. The Government recognises the crucial role that ICT can play in development and is determined to catch up with the rest of the region and the world. Consequently ICT has been prioritised. This makes the ICT Project relevant as it sought to address the challenges faced in the delivery of ICT services.

The ICT Advisor project was very relevant from several other perspectives:

- It filled a critical capacity gap within MCT by providing a person who had the skills to translate some of the ideas outlined in the ICT Policy and ICT Implementation Strategy into concrete projects
- It built the capacity of MCT, not only by imparting new skills to staff (e.g. on project proposal development) but also through the implementation of the projects outlined above, some of which cut across different ministries.
- Most of the activities carried out by the Advisor were in line with the ICT Policy and Implementation Strategy (90%) and were therefore critical national priorities that will:
  a) improve the way the Government delivers services and communicates with itself and with the public, facilitate decentralisation, reduce corruption and increase government accountability (e-Government);
  b) improve communications and information exchange among researchers and teaching staff in research institutions and universities and facilitate e-learning among students, (MoRENet);
  c) improve governance, ICT skills, literacy levels and give voice to the poor and marginalised (CMCs).
  d) Improve health delivery through more efficient health information systems
  e) Improve access to government services for the people through the Unique Citizen Identity Number and Population Registry

- The ICT Advisor can largely take credit for setting up MoRENet, which is transforming information exchange among institutions of higher learning and research institutions in Mozambique by making it easier for them to share information and facilitating inter-connectivity at lower costs and through a higher speed connection than would be available through commercial service providers

- The Advisor Project achieved most of the outputs outlined in the UNDP CPAP document, which in turn are aligned to Mozambique's development priorities and are also in line with the PARPA, making the Project critical to the country's development.

- One of the Project's major achievements was its success in mobilising resources. From the annual budget of $5 million MCT had when the Project started, about $60 million has been mobilised for the ICT components, including the e-Government, MoRENet and the CMCs.

- The project was also relevant as it contributed to building the capacity of MCT by mobilising resources to enable the Ministry to hire and retain key staff.

4.2 Effectiveness

The ICT Advisor project was effective in several ways including:

- By placing an advisor within the Ministry of Science and Technology the Advisor Project enabled both the Minister and key staff to benefit from his innovation, skills and experience.

- The project's effectiveness can also be seen by the $60 million that was raised for various ICT projects, including MoRENet and e-Government and the MICTI.

- Taken from another perspective, the Advisor Project was a sound investment where the Ministry, through the Finnish Government and UNDP, invested $1.2 million and got a return of $60 million a 5 000% return on investment!

Taking a longer term perspective that factor in project impact, the effectiveness of the various initiatives in which the ICT Advisor participated and which he initiated can only be measured by how the projects deliver the expected results. For instance, the purpose of the CMCs is not just to attain rural connectivity, but to enable the poor and marginalised to access information that will transform their lives. The extent to which this is achieved will ultimately determine whether the initiatives have been successful.

While it is true that the Advisor Project laid the foundation for the achievement of those results, it is how various other aspects of the projects are implemented that will determine whether they are effective. In other words, the extent to which the architecture of the projects and their implementation lend themselves to delivering the expected results will determine their level of success. For instance, for the CMCs to be effective, they should focus not only on connectivity, but on content development. They need to ensure that the information being disseminated through community radio is relevant to the communities. There is also need to ensure that communities can use radio, not only to receive information from the government, but also to put their views across to policy makers on issues affecting their lives. Although the community radio is a government initiative, there is need to guard against it being used as a political tool.

In this regard, the issue of content development is key, not only for giving communities voice, but in determining how the media centres can be used to disseminate information that is critical to the lives of communities – on agriculture, on literacy, on e learning, on health, arts and culture etc.

> **Getting Priorities right**
>
> The benchmark in ICT-for-development programmes must remain their contribution to progress towards the MDGs, and the creation of vibrant markets and institutions. Access to ICTs, by itself, is a poor proxy for these fundamental goals. Focusing only on "closing the digital divide" could distract from and undercut these more urgent priorities. (OECD Policy Brief 2003)

There is also need to use the CMCs as the district level ICT centres relaying connectivity to local authorities, health centres etc. CMC's should also be much more open to external partnerships with the private sector and not to be considered purely as government setups.

The ICT Implementation Strategy envisaged the recruitment of content developers from abroad (preferably Portugal and Brazil because of language considerations) who would be attached to the CMCs to develop relevant and appropriate content.[17] The idea of bringing in expatriates was from the realisation of Mozambique's capacity constraints in the area of ICT skills to produce appropriate local content. But the question is how easy would it be for someone from a foreign country, with limited knowledge of the culture and practices of the communities, to develop local content that the people can identify with. Developing relevant local content is also critical to get a buy-in from communities on the CMCs as this will enable them to identify with the messages being put out by the centres. This is particularly the case with the community radio.

As the OECD Policy Brief aptly puts it: "While (ICT strategies and programmes) should draw on global experience, they will only be successful if they adapt that experience to local realities. This means prioritising local actors, local *content*, and local initiatives and priorities. Local content is important because the most valuable knowledge is often that which is properly adapted to local context, local needs and local styles of learning and sharing knowledge. Understanding local *context* is equally important. ICTs might enable certain changes in the abstract, but their success depends on the economic, social and institutional structures in which they are embedded".

Currently, 45 CMCs have been established in districts across Mozambique but their effectiveness is uneven depending on the endogenous and exogenous factors affecting them in their specific sites. Endogenous factors often include capacity constraints among the volunteers running the centres, resulting in their inability to develop content and limited capacity utilisation of the facilities at the centres. The exogenous factors include lack of connectivity to electricity in some centres, which has forced some centres to rely on more expensive and less reliable alternatives

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[17] Republic of Mozambique (2002) Information and Communication Technology Policy Implementation Strategy: Toward the Global Information Society, pg 30

such as solar power and generators; lack of connectivity to the internet for most of the centres (only seven centres are connected to the internet), which means that they are being used sub-optimally.

A major challenge is the need to educate people to use the centres, which means raising awareness on the benefits of ICT. As an official in the Ministry of Science and technology says: "Without creating the awareness, the centres will become white elephants. There is need for a new focus on content development and on awareness raising on how ICT can be used to address multiple issues including food security, governance and health". Failure to address these issues means that the potential of the CMCs to address critical issues of poverty reduction will be severely limited.

A major challenge to the effectiveness of the CMCs is the high level of illiteracy in Mozambique. Although enrolment rates to primary and secondary education have been improving (gross enrolment rate 54,3% in 2007[18]), the literacy rate stands at 48,3% for entire adult population and 36,1 amongst women[19]. The high illiteracy rates mean that there is likely to be less demand for ICT training and less people using ICT from the start.

But the reverse could apply if ICT is used effectively to spearhead literacy programmes. The ICT Implementation Strategy advocates for the use of computers for literacy programmes and says India has successful models and software packages that could be considered for adaptation, application and replication in Mozambique.[20] If the CMCs can use ICT to run literacy programmes, this would entice more people to use the centres and improve the effectiveness and impact of the centres.

4.2.1 Need for government commitment

[18] UNDP Mozambique Human Development Report 2008, statistical data from 2007
[19] UNDP Mozambique Human Development Report 2008, statistical data from 2007
[20] Republic of Mozambique (2002) Information and Communication Technology Policy Implementation Plan – Towards a Global Information Society, pg. 29

While there is a general agreement in Mozambique about the importance of ICT in development, especially among those involved in ICT, there are fears that this view may not be shared by all in the government. The allocation for the Ministry of Science and Technology was cut in the 2012 National budget and several people interviewed felt that this was a sign that ICT is not being prioritised.

As an ICT official put it: "ICT is very relevant to Mozambique's development, but the national budget gives very little to science and technology. The budget for ICT declined by a significant amount this year compared to last year. This could be because people do not understand the importance of science and technology. Projects in the Ministry have had to rely on donors, but if the allocation from the national budget declines, this will also affect how much we get from donors because they will realise that we are not prioritising ICT".

But the Minister of Science and Technology disagrees and says the budget cut resulted from the global recession which is also affecting the country. Mozambique relies on donors for about 50% of its national budget. The Minister says despite the cuts, his Ministry will still be able to implement its programmes using resources fundraised with support from the Ministry of Finance.

4.2.2 Need for supporting infrastructure

For both the e-Government and for the CMCs, there is need for supporting infrastructure to enable the investments in ICT to have a positive impact on people's lives. Information on markets and on agriculture prevailing commodity prices is not useful if there are no roads to enable farmers to take their produce to the markets. For instance, currently Mozambique has approximately 30,400 kilometres of highways, 5,685 kilometres of which are paved. Large sections of the remaining 24,175 kilometres of highway are virtually impassable during the rainy season.[21] Given this situation, e-government may not be so effective if government extension

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[21] http://www.nationsencyclopedia.com/economies/Africa/Mozambique-INFRASTRUCTURE-POWER-AND-COMMUNICATIONS.html#ixzz1In9CnjvL

officers and health providers cannot travel to provide the required services because roads are impassable. Equally, the CMS cannot be effective if they are not connected to electricity or to the internet. Access to electricity is very low in Mozambique. Currently only 5 percent of the population has access to electricity and in the rural areas, only one percent has access[22]. There is therefore need for parallel initiatives to build and rehabilitate supporting infrastructure, including roads, electricity and internet connectivity.

4.2.3 Connectivity no guarantee for improved governance

The e-Government programme appears to be effective, with at least 46 districts and 200 government institutions hooked up. The government says one of the aims of the programme is to improve governance and reduce corruption, so measuring the effectiveness of the initiative is essentially looking at how it is achieving these goals. But connectivity alone may not be enough to achieve those objectives.

Recent OECD research on the challenges and opportunities posed by e-government in OECD countries may provide valuable lessons for Mozambique. According to the research, the use of ICTs does not necessarily improve governance and public service, nor will it necessarily make governments more responsive to their citizens: "e-Government will not succeed without deeper and more difficult changes in government practices and bureaucratic culture. E-Government can help facilitate these changes, but they will not happen simply by the injection of technology," the report says.[23]

Key people in the Ministry of Science and Technology realise the need for change. As an official in the Ministry said, "The challenge is the need for a paradigm shift and the need to sensitise people that the government is a single entity and the various ministries are just departments in the government. The perception that ministries are

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[22] Cumbe F et al (undated) The Status of "Clean Cooking Fuels" in Mozambique

[23] OECD Policy Brief (2003) The e-government imperative: main findings www.oecd.org/gov/egov

stand alone entities should be removed. Information systems cannot be compartmentalised in silos. Government departments have to work together and exchange information. The challenge is to achieve the social engineering that is required for people to come to a common understanding on the need to communicate across sectors and within sectors".[24]

4.4 Efficiency

Purely from a financial perspective, the Advisor Project was very efficient. An investment of $1.2 million yielded over $60 million in four years, through fundraising by the Advisor. While this may be over-simplifying issues, it captures the essence of the work that was done through the Advisor Project. The negotiation of the software agreements with Microsoft Corporation also yielded positive results with the government getting a 60 percent discount on software purchase and free upgrades.

Other aspects in which the Project was efficient was the cost effective ways in which the skills of the Advisor were used by the Ministry and by donors. For instance, the Advisor coordinated two large projects – the World Bank-funded MEGCIP Project and the MOSTIS Project either of which would have required a full time coordinator. During this time too, the Advisor was managing MoRENet and also supervising the refurbishment of the centre. All this on top of his other duties as advisor to the Minister.

That the Advisor was able to multi-task and still be effective benefitted the Ministry as it did not have to hire additional staff to carry out those functions. From another perspective, working in these different capacities, gave the Advisor a bird's view of Mozambique's ICT programme enabling him to see the linkages, make the connections and create synergies between the various programme components.

Being able to see the inter-connectedness of the various components of the programme facilitated getting funding for MoRENet and the e-Government programme from the World Bank. It also helped in the making the linkages that are envisaged between the CMCs and the e-Government programme in terms of

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[24] Interview with Ministry of Science and Technology technical staff

information dissemination on government services. From these perspectives the Advisor Project was efficient.

4.5   Impact

While it is always difficult to measure the impact of a project, some of whose components are still in pilot phase, by looking at the architecture of a project and the way it is being developed and the resources that are being invested in it, it is possible to assess its future impact.

At the intermediate level, the largest impact of the Advisor Project was the institutional strengthening of the Ministry of Science and Technology (MCT). The capacity of MCT was built at two levels: the first level was building up a team of 17 technical people, who are now implementing the ICT projects in the Ministry; providing hands on training to the technical staff in MCT and in institutions such as MoRENet, in areas such as project proposal development and management skills and also fostering a work culture in the Ministry deriving from the Advisor's private sector background. As an official in the Ministry said: "He brought the private sector experience into the Ministry, particularly relating to instilling a work ethic in the staff".

The second level of impact was mobilising the resources to continue the projects after the Advisor left. Mobilising the $60 million enabled the Ministry to hire and pay staff. Setting up of institutions, such as MoRENet, which has now connected 13 institutions of higher learning together enabling them to share information and research findings is also another impact at this level. Many students at universities in Maputo are now linked to MoRENet, and this has a positive impact on their access to information and knowledge.

The conceptualisation and implementation of the e-Government programme is also another impact of the ICT Advisor Project as it enables government departments to be linked to each other and in this way has improved service delivery. The government portal has over 2 million visits (hits) a month, which clearly shows that it is making an impact as a provider of government information.

Although the CMCs are still in the pilot phase, where they are being run properly, their impact is being felt. One of the CMCs, for example, receives more than 30 000

visits a month from community members seeking information or other services that the centre provides.

The CMCs have given voice to the poor and will improve the quality of governance by allowing for two way communication between policy makers at provincial and district level with the communities through community radio.

The negotiation of software contracts with Microsoft Corporation reduced software costs by 60% for the government (the discount offered as part of the deal) and has other positive benefits on the functioning of the government through the provision of compatible software among different departments. It also fosters a culture of respect for intellectual property rights as it discourages software piracy.

MoRENet is making an impact, albeit on a smaller scale. Many students at universities in Maputo are accessing internet through MoRENet. Also in its pilot stage, MoRENet's impact will be felt more when research institutions and universities are fully subscribed and start exchanging information.

4.6 Sustainability

The sustainability of the ICT project can be looked at from two perspectives: whether MCT can continue to function effectively without the Advisor and what sustainability mechanisms were built into the project. One of the key achievements of the Advisor Project was that the advisor was able to build a team of technical experts within MCT. The team was hired quite early into the project, which gave them time to benefit from the Advisor's skills. But what contributed most to the project's sustainability was the ability of the Advisor to fundraise the $60 million, which has created a sound base for the projects to continue.
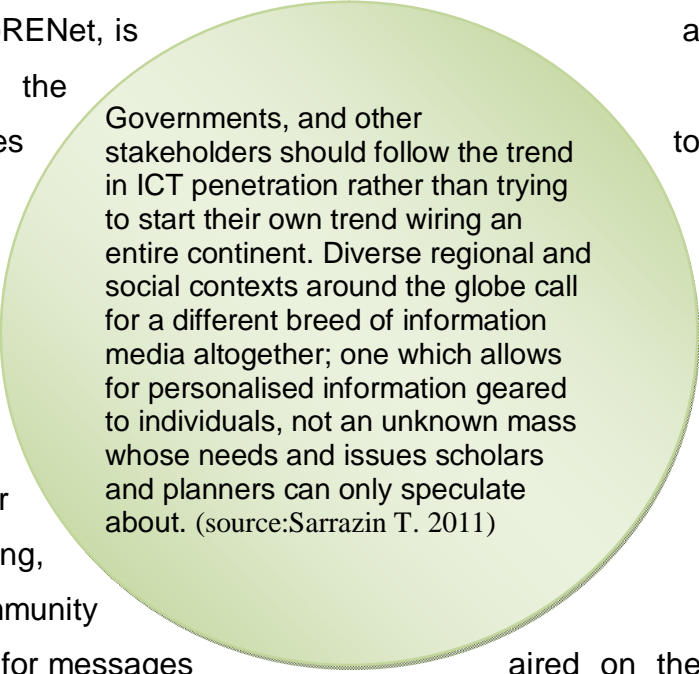
- The funds raised through the Project will enable MCT to implement its priority projects over the next five years
- The Project built the capacity of MCT by availing the resources to hire a team that will carry forward the planned activities to implement the ICT strategy

Another sustainability factor was the development of the business and sustainability model for MoRENet. The model builds in the MoRENet's running costs (salaries and

costs of connectivity and monthly subscriptions) as well as the replacement costs for equipment. But the business model will only contribute to MoRENet's sustainability if the institutions pay the stipulated subscriptions fees. To date, none of the institutions are subscribed. They say they are waiting for the installation of fibre optics that will increase the capacity of the network from the current 2gbs to 34gbs/sec.

While the proposed tariffs are lower than what the institutions would be charged by private service providers, they may still be considered too high by the universities. For instance, the proposed subscription fees for Eduardo Mondlane University is about $22 000 a month – using the lower subsidised rate for connectivity. It is not clear whether the university has the resources to pay such high tariffs or is willing to pay, especially considering that MoRENet, is a government institution and the universities may expect the services to be cheaper.

While there is no clear business plan for the CMCs, users are expected to pay for the various services offered. This includes for ICT training, internet use and for other services, such as photocopying, printing and scanning. Community members are also expected to pay for messages aired on the radio (birthday wishes, funeral notices etc). But here again sustainability will be determined by whether users, such as government departments, will be charged for services and if they are, whether they will pay. Sustainability will also depend on whether the rates charged are sufficient to cover operational and replacement costs for the equipment.

Governments, and other stakeholders should follow the trend in ICT penetration rather than trying to start their own trend wiring an entire continent. Diverse regional and social contexts around the globe call for a different breed of information media altogether; one which allows for personalised information geared to individuals, not an unknown mass whose needs and issues scholars and planners can only speculate about. (source:Sarrazin T. 2011)

To enhance the sustainability of the CMCs, perhaps three things need to happen at the same time:

i. to invest heavily in training local people to maintain the equipment and to produce relevant content for the centres or at least to be able to identify the

people with the skills to develop local content that is relevant to the needs of communities

ii. to come up with properly costed business and sustainability models which incorporate realistic fee structures for services provided and that also build-in running costs and replacement costs for equipment

iii. to encourage the private sector to invest in the centres by designing products and services that allow them to make a profit and at the same time to provide affordable services that do not require subsidies.

A factor that is working against the sustainability of the CMCs is the rapid changes that the ICT sector is going through. This may mean that by the time CMCs are set up in all the districts, some of the services currently being offered may no longer be relevant or viable. For instance, in most countries people can now access internet from mobile phones at a fraction of the cost of using established service providers. Mozambique will not be an exception and so the sustainability of the CMCs will depend on the extent to which they can adapt to the changing ICT landscape to take advantage of emerging technologies.

The box opposite shows some of the developments in mobile phone technology that are linking cell phones to computers to create powerful new and affordable tools for information dissemination to rural communities without internet access. One of these is the Freedom Fone which is being piloted successfully in Zimbabwe to disseminate legal information to the rural poor, and in the process improving their access to justice. The Freedom Fone can also be used to disseminate information on health, agriculture or advocacy messages. There is need for Mozambique to start exploring some of these cheaper alternatives, especially in relation to the CMCs to ensure that the concept and the services offered by these centres remain relevant.

FrontlineSMS, Kubatana and Freedom Fone

FrontlineSMS is software, which provides a two-way group messaging centre that only requires a computer, a mobile phone and a cable to connect the two. Once Frontline SMS is set up, the administrator can send out text messages to subscribers who in turn can respond via SMS. The service does not require internet connection which means it can be deployed in rural areas with no internet access. The application has proven to be a powerful tool for disseminating information of a variety of topics including health issues and even the provision of legal advice. Programmers constantly incorporate new features, thereby providing localised solutions for local needs.

Kubatana is a Zimbabwean NGO that uses Frontline SMS to communicate with the public. Kubatana sends out information via text messages. Subscribers can respond to the messages, ask questions or use the service to report on events in their neighbourhoods. Kubatana also offers Freedom Fone, an application that provides information to callers with the help of an interactive voice response menu. Upon calling, users are presented with a variety of areas of interest which they can choose from by pressing numbers on their mobile phones. Users are guided to an audio clip with information on the desired subject. A content management system allows administrators to feed the application with audio files, creating their own menus for users to navigate through. Freedom Fone can be used by a variety of language groups simply by pressing a number for the appropriate language option. Users can also leave voice messages with questions or feedback on the audio content of the platform. If fed with the right content, Freedom Fone can deliver public service content to a much wider audience than conventional mass media. It does not require a TV, radio set or even literacy on the part of the user and as long as citizens have access to mobile phones, Freedom Fone can be used by practically anybody. The low equipment requirements of the system makes it a more affordable and accessible option than starting a radio station or buying radio airtime to communicate a message. (source: Sarrazin T 2011)

Another sustainability issue with the CMCs is the initial cost of setting them up, which is estimated at about $100 000 each. The Ministry of Science and Technology (MCT) plans to set up one CMC in each of the country's 131 districts, which works out to around $13 million to set up

and equip all the centres. These costs could be even higher in future as MCT indicated that there are plans to equip each centre with at least 50 computers..

While the costs of setting up the centres may appear manageable, in the long run the centres are likely to become a drain on the state budget unless they can finance themselves, which is not likely given their current performance.

One of the more successful centres has recorded up to 30 00 people using the centre a month. The team running the centre has gone further to improve their financial sustainability. They use the meeting hall to show movies to the public and for a fee. But because there is no clearly defined sustainability strategy for the CMCs, cases such as this are the exception rather than the rule. The centres rely too heavily on the ingenuity of individuals managing them to come up with sustainability strategies, with little guidance from the centre.

A Ministry of Science and Technology official says the Ministry just sets up the CMCs and finds people who can run them: "We set up equipment and train the people, we register the radio and after that we leave it in the hands of the association, which is chosen by the community to run the centres".

The Ministry's hands-off approach assumes that those appointed to run the centres have the capacity to develop and produce local content; design business plans to ensure their viability; have the management skills to run the centres and can sustain community interest in the CMCs by getting their buy in and fostering community ownership of the centres. The Ministry's hands-off approach is setting the CMCs up to fail.

There is need for a more hands-on approach where the volunteers running the centres go through an intense training and mentorship programme so that they fully understand the concept of CMCs, what they aim to achieve and how best they can manage them to ensure local ownership and sustainability. There is also need to provide sufficient resources to effectively run the centres, including for the production of content and also to build local competencies in content development.

4.7 Replicability

It is difficult to assess the replicability of the Advisor Project because it was based on an individual. For instance, if the Ministry of Science and Technology were to hire another advisor, there is no guarantee that he would perform to the same level of competence or achieve similar results regardless of whether his TORs clearly spell out his responsibilities or if he is hard working. The achievements of the Advisor Project depended too much on the performance of an individual, who did much more than was in his original scope of work. This may therefore not be replicable.

For replicability, there is a need to institutionalise the position of advisor within the Ministry. In essence this would entail splitting up the position so that the advisory services to the Minister remain with the advisor, while the other functions that were performed by the last advisor – fundraising, initiating and designing projects, coordinating and managing projects and teams within the Ministry, negotiating with donors and with software providers – would be institutionalised within the Ministry.

In other words, there is need for institutional strengthening of the Ministry of Science and Technology to enable the core team that was set up within the Ministry to carry out most of the work that was being done by the Advisor outside his advisory duties. This would not only ensure more sustainability, but would also embed the skills within the Ministry and bolster capacity. Under the current initiative, five experts were hired in the Ministry to operationalise some of the projects that were initiated through the Advisor Project. But for long term sustainability, there is a need to prioritise the building of a wider ICT skills base not only within the Ministry, but within Mozambique both in the private and in the public sectors. This would ensure continuity of projects even if any of the current team members leaves. The creation of a larger pool of experts would enable the institutionalisation of the work that the Advisor was doing and also ensure that the skills are localised and therefore more sustainable.

Currently because of the narrow ICT skills base in Mozambique, the Ministry has problems retaining skilled staff. For instance, one department in the Ministry had 10 people last year but has lost half who have gone into the private sector. There is a high demand for people with ICT skills, so the attrition rate from the government is high. Creating a wider skills base would make it easier to replace those who leave.

Implementation arrangements, organizational structure, managerial support and coordination mechanism for the ICT Advisor Project

5.1   Institutionalising the Advisor Post

Although the ICT Advisor Project was highly successful, it was not institutionalised within the Ministry and therefore with his leaving, a gap was created that has been difficult to fill as evidenced by the slowing down of activities after the Advisor left. For example, when the Advisor left, 9 institutions were already hooked up to MoRENet, but two years on, the number has increased to only 13 (out of a possible 50), which shows that some of the initial momentum has been lost.

There is a need to institutionalise the position in future by attaching a team of at least two other people who would work with the advisor on a daily basis and would be involved in some of the work that he was doing, including negotiating contracts with the World Bank and with Microsoft.

There is also need to separate the advisor tasks from the operational aspects of the work such as financial reporting and management (the advisor was writing all the financial reports for the project), project management (the advisor was managing MoRENet); project coordination (the advisor was the coordinator of the World Bank MEGCIP project and the Science, Technology and Innovation between Finland and Mozambique (STIFIMO) Project) and project proposal writing (the advisor wrote all the project proposals).

In future, where the advisor has to work in these capacities, he should be assisting an incumbent Mozambican to build local capacities. Also as part of capacity building, local experts, who were part of the core team that was set up by the Advisor, should have been more involved in negotiations with the World Bank and with the Finnish Government as well with Microsoft.

5.2   UNDP Procurement

An issue that was raised by most of the people interviewed was the long delays in UNDP procurement. Partners feel that this slows down project implementation substantially and should be dealt with.

5.3 Monitoring and Evaluation

The ICT Advisor project was monitored and evaluated according to UNDP procedures, which required the submission of annual work plans specifying outputs, indicators and means of verification. Regular project progress reports were also submitted, which detailed progress made against the laid out outputs. This makes it easy to follow progress on the implementation of the various components of the programme.

Having the Project managed by UNDP ensured that it benefitted from the Agency's experience in project management and from technical support on issues such as tendering and procurement, which also a critical factor for transparency. UNDP financial management also removed the burden of managing the finances from the Advisor placing it in a larger institution with higher capacity.

5.4 Coordination Mechanisms

The coordination mechanisms for the Project were through the annual tripartite meetings involving MCT, UNDP and the Finnish Embassy. The tripartite meetings also provided overall oversight of the Project and were an effective platform to address issues affecting project implementation. Coordination of the project was also through UNDP's Governance Unit, which provided backstopping to the project.

5.5 Institutional Arrangements

The Advisor Project was located in the Ministry of Science and Technology and the Advisor was a member of the Minister's "Cabinet" or advisory team. Within the Ministry, the Advisor established thematic and crosscutting specialist teams that interfaced with other government agencies and departments. Thematic and crosscutting specialist teams ICT working groups also set up that were made up of stakeholders from different government ministries and the private sector. An E-Forum was set up comprising of representatives from every ministry and quasi-

government agencies (at least 49 members). The Forum is supposed to meet once a week to discuss ICT related issues in their ministries. These arrangements were inclusive and ensured a buy in from different ministries and government departments and eliminated competition and fighting over turf between MCT and the other ministries.

The Advisor coordinated the MEGCIP and the STIFIMO Projects during their preparatory phases. This arrangement worked well as he was able to negotiate with the World Bank and the Finnish Government on funding of the projects. The arrangement also were also cost effective as the Ministry did not have to hire additional people to coordinate the two projects during the preparatory phase.

5.6   Facilitating Factors

According to the former Advisor himself, the facilitating factors for the project were the project team that was set up within the Ministry of Science and Technology with whom he worked as well as the Minister himself. Securing funding to continue implementing the ICT projects was also another facilitating factor as it allowed continuity. The setting up of ICT Working Groups and thematic groups within the MCT

6.0   Challenges

Major challenges that the ICT Advisor Project faced relate to getting a buy in from other ministries for the ICT projects. Because ICT is cross cutting, the Ministry of Science and Technology was often seen as interfering in other ministries and this created tension. The issue has been partly resolved through the setting up of the E Forum and of the ICT Working Groups. Because the Working Groups also brought in other ministers to sit on the board, this reduced tensions and made it possible for them to cooperate with each other.

Another major challenge in MCT is staff attrition as people move to greener pastures. There is an acute shortage of ICT skills in Mozambique, so demand for them is high especially in the private sector. As a result, the Ministry has been losing staff. The problem of staff attrition will continue as long as demand for skills is higher

than the skills that the country is producing. There is need to rapidly increase the number of skilled people coming out of universities and other institutions to cope with the demand. Incentive packages will not work as this will just result in a spiral of escalating salary costs.

Another challenge has been the lack of electricity and internet access at many of the CMCs. Some of the CMCs have had to rely on generators for power and in many cases these belong to local authorities who put strict limits on usage, which crippled the operations of the CMCs.

A challenge in the Ministry itself was how to fill the gap left by the ICT Advisor. Because the Advisor worked on his own in many of the initiatives, it has proved difficult to take over from where he left off. As an official in the Ministry said: "There was no proper structure set up within the Ministry to take over the Advisor's projects when he left". While no "structures" may have been set up to take over, an officer in the Ministry was appointed by the Tripartite Committee to wind up the Advisor Project and carry out some of the functions that the Advisor had been doing, such as paying salaries for some of the officers in the Ministry and also overseeing the completion of renovations to the MoRENet Centre. But because the officer was not familiar with many aspects of the Project, "this slowed down the process of implementation considerably".

A challenge that may loom soon is the failure of research institutions and universities to subscribe to MoRENet. Although a business model and sustainability plan has been developed which proposes tariffs for the services that MoRENet will be providing, none of the institutions have subscribed. The reason given now is that there is not enough bandwidth, but it could also be because of the long delay in getting the bandwidth required. Also the time it took to finally get MoRENet going (because of the delays in finalising MEGCIP) could also mean that the momentum of the project has been lost and the institutions need to be re-introduced to the project. This may need to be done when all the systems are up and running, but at a more senior level than the staff currently running the institution.

Another problem could also be because there is not enough buy-in into the project from the institutions. Literature on the project does not show the consultations that

took place in the conceptualisation and design of MoRENet. While initially UEM appears to have come up with the idea of setting up MoRENet, when it was taken over by the MCT, consultations may not have been broadened sufficiently to make them more inclusive by the conceptualisation of the CMCs and of MoRENet appears to have been with little consultations with other stakeholders. .

The conceptualisation of the CMCs and of MoRENet appears to have been with little consultations with other stakeholders. . Inadequate consultations of other institutions on their ICT needs could result in them ignoring or not fully utilising the services, reducing MoRENet to a white elephant.

Equally, there is no evidence of consultations with communities on the establishment of the CMCs. While their setting up may be a good idea, if communities perceive them to be impositions from above, they may not succeed to the same level they would if communities had an input into their design. Community input would also reflect their priorities, which could mean that the design of the centres would not be the current one size-fits-all but would be tailored to the needs of specific communities. This would also increase community ownership of the centres.

7.0   Lessons learnt and best practices

- *Fundraising for project sustainability*
  In building institutional capacities, it is essential not only to hire the requisite staff, but to ensure that the funds for their continued employment are secured so that the project can be sustainable in the long run.

- *Setting out clearly defined TORS*
  It is important to set out clear terms of reference for an advisor and to come up with clearly defined deliverables and work plans as this makes it easier to monitor their work and to measure achievements and constraints. The Advisor Project had clearly defined deliverables that he had to achieve and from the reports it is possible to monitor progress and achievements

- *Building-in sustainability mechanisms*

There is need to build sustainability mechanisms into project design. In the case of MoRENet, part of the sustainability plan includes the drawing up of a business plan which sets out which clearly spells out the rates that institutions and individuals will be charged for services. The tariffs charged include, not only the running costs, but also the replacement costs. The business model is very crucial as it will ensure MoRENet's sustainability from the monthly subscriptions of organisations that are subscribed to its services.

- *Broadening the skills base in Mozambique*
In a country such as Mozambique, which has a general shortage of skilled ICT personnel, capacity building of staff at institutional level should be accompanied by capacity building at national level by training people in ICT skills at various levels to create a wider pool of ICT skills in the country. This will ensure there are enough skills in the country to cater for activities that may be generated by the initial ICT programmes. It will also reduce the vulnerability of programmes to skills flight, particularly those in the government where salaries are usually less competitive.

- *Giving the Advisor leeway to perform*

The services of an international advisor can be used strategically to do a wide variety of work, including fundraising, capacity building and being an advisor. But key to this is the need for flexibility both on the part of the advisor and the institution to which he is attached to allow the advisor to develop programmes and to interpret ideas in the best way he sees fit, as long as they are in line with the laid out national strategy, in this case the ICT Implementation strategy.

8.0   Best practices

- *Capacity development through the creation of a multimillion dollar fund*
Fundraising for the Ministry was perhaps the most strategic aspect of institutional strengthening carried out by the Advisor. It enabled the Ministry to continue projects that had been initiated and to hire and pay staff. Fundraising for the activities that he started was a key strategy in ensuring continued

programme sustainability. The Advisor also trained staff in the Ministry in project proposal development to ensure that they are able to continue to fundraise.

- *Getting a buy in for ICT from other Ministries*

  The Ministry of Science and Technology activities are cross cutting, in particular ICT. To ensure a buy in from the various stakeholders involved, the Minister set up working groups, including the an E Forum, as cross sectoral entities to coordinate and plan Government ICT programmes. The establishment of these bodies has created a platform for dialogue among the various ministries and has reduced the tensions that would come from the Ministry of Science Technology trying to oversee ICT programmes in other ministries which may have resented interference from another ministry.

- *Building sustainable institutions*

  Although the Mozambique government recognises the importance of ICT, it also realises the importance of ensuring the sustainability of institutions created. To this effect MoRENet has developed a business model and sustainability plan. Although currently the 14 institutions that are linked are not yet paying, the fee structure should enable MoRENet to operate without resorting to government subsidies.

  With more than 218 multi-media centres (MMCs) planned, one for each district in the country and 46 of these already set up, setting up the centres and hooking them up to the internet will be expensive. To recover some of the costs MMCs charge for the services they provide. Putting a price on the services will ensure (a) that people value the services (b) that the centres raise significant sums of money towards their running costs (c) that the centres are community owned as they would be run using local resources.

  Building in sustainability mechanisms into the initiatives being set up by MCT will ensure that they continue to run with little government support in future.

There is however need to review cost structures to ensure that they not only cover running costs, but also replacement costs, particularly for computers and other hardware. Failure to do this will result in the centres collapsing after the initial government investment, most of which is being funded through donor support.

- *Negotiating a software deal with Microsoft*

  The negotiating of a software deal with Microsoft, which was one of the Advisor's achievements, is a best practice, which can perhaps be followed by other African governments, from several perspectives:

  a) It was the first Strategic Partnership Agreement between a government and Microsoft Corporation on the African continent for the provision of software to the Government of Mozambique. The deal was negotiated favourably for the Government as it did not grant Microsoft exclusive software marketing rights for Mozambique and leaves room open for the Government to source software from other companies instead of locking the Government to one software supplier.

  b) The government got a 60% discount on software and free updates, which has reduced the software costs significantly

  c) The deal will ensure greater compatibility of software within government departments

  d) The deal also ensures that the government uses properly licensed software and eliminates the use of pirated software, thus creating a culture of respect for intellectual property rights in Mozambique

Conclusion and Recommendations

9.0   Conclusion

The ICT Advisor Project was highly successful, but perhaps one that cannot be repeated. It achieved what it set out to do, which was to create a sound infrastructure base for ICT in Mozambique and to build the necessary institutional capacities to carry the project forwards.

It is clear from the report that the Project was relevant as most of the initiatives that were implemented were in line with the ICT Policy Implementation Strategy, which in turn is in line with the PARPA II. It filled a critical capacity gap within MCT by providing a person who had the skills to translate some of the ideas outlined in the ICT Policy and ICT Implementation Strategy into concrete projects. The Project also built the capacity of MCT by mobilising resources to enable the Ministry to hire and retain key staff.

The Advisor Project was effective as key staff in the MCT benefitted from the Advisor's innovation, skills and experience. Raising $60 million for various ICT projects demonstrated the Project's effectiveness. But taking a longer term perspective, the effectiveness of the various initiatives can only be measured by how the projects deliver the expected results. While the Project laid the foundation for the achievement of results, it is how other aspects of the projects are implemented that will determine whether they are effective.

While it might be too early to comment on the impact of the project, indications from some of the projects show that they are already making an impact. For instance, students at several tertiary institutions in Maputo are linked up to MoRENet. Communities in some areas are benefiting from services from the CMCs and the e-government programme has improved access to government information.

Project sustainability was achieved at two critical levels – the skills base that was developed within MCT and the resources that were mobilised to ensure that the projects continue after the Advisor left. But looking into the future, MCT and other

stakeholders involved in the programme should be aware that because ICT moves fast, they should constantly review the projects that were initiated under the ICT Advisor Project for their continued relevance. Failure to do this will result in a waste of resources due to their failure to deliver.

Both MoRENet and the CMCs are in the pilot phase. This is an opportunity to assess their feasibility and sustainability before they are rolled out. But for the pilots to produce the desired results, there is need to invest more resources into the projects to enable them to yield to their full potential. For instance, only seven of the 45 CMCs are connected to the internet so it is not possible to determine whether communities have an interest in the internet or how the interest can be generated unless they have the internet. The proposed investment should also include:

- development of business models and sustainability plans for the CMCs
- local content development.
- awareness raising in communities about the services provided by the CMCs
- Capacity building of the volunteers running the centres through intensive training and mentoring to ensure that they understand the concept of the CMCs

For MoRENet, the investment would be in:

- Speeding up the upgrading of network to the higher bandwidth 34 tb/s for the Maputo institutions that are already linked and ensuring that they pay subscriptions for services
- Linking the institutions to regional and international networks so that they get the full benefit of their subscriptions

The pilot phase would also enable MoRENet and the CMCs to iron out the glitches in their operating systems before the roll out is considered. Before embarking on the roll out, there is also need to take into account developments in the use of cellular telephones to ensure that future investments do not duplicate services already offered by private service providers through mobile phones and through other internet service providers.

The rapid proliferation of mobile phones in all Mozambique offers opportunities to try new and cheaper technologies for information dissemination in the rural areas. Some of the new technologies are being tried successfully in the region in countries such as Kenya, Uganda and Zimbabwe. There is need for Mozambique to start exploring some of the cheaper alternatives using mobile phones to provide services to more people.

10.0   Recommendations

- There is need to build the basic human resource infrastructure in Mozambique on which ICT will be grounded. This will entail a greater focus first and foremost on raising the literacy levels in the country by increasing primary school enrolment and through adult literacy programmes and by intensifying ICT training both in schools, tertiary institutions and in workplaces to create a pool of ICT skills to take the country forwards in its development

- MoRENet and the CMCs are still in their pilot phase. The government should take advantage of this to invest more resources into the pilot so that it can determine their potential fully before the roll out and also to iron out glitches in the systems.

- The government should put in place supporting infrastructure, such as electricity and roads to improve the effectiveness and impact of projects such as MoRENet, e-Government and the CMCs.

- As the MCT rolls out the CMCs, it is critical to get community buy -in and also to design relevant projects by consulting communities widely on the project. This will ensure that the facilities that are provided and the content that is developed are relevant to the people's needs.

- Rapid developments in mobile cellular technology have created new opportunities to reach a larger number of people in remote areas at a lower cost. Mozambique should explore some of the more cost effective alternatives offered by mobile phones.

- There is need for wide consultations with stakeholders before projects are initiated to ensure their buy-in and that the initiatives meet the needs of the beneficiaries.

- Although the Project was successful, it was not institutionalised in the Ministry so that when the advisor left a gap was created that has been difficult to fill. In future there would be need to institutionalise the position by attaching at least two other people to work with the advisor on a daily basis. This would build local capacity and increase project sustainability and ownership.

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- UNDP should improve its procurement procedures to make them faster so as to better facilitate programme implementation

Appendix One: List of References

Braa J (200) A Study of actual and Potential use of ICT at District and Provincial Levels in Mozambique with a focus on the health Sector

CIA (2011) World fact Book United States Central Intelligence Agency

Chemane L (Undated) Mozambique ICT Policy Implementation Strategy and e-Government

DFID (2002) The significance of information and communication technologies for reducing poverty

Government of Finland (undated) Draft Framework Document for the Government of Finland Support for Science and Technology and Innovation in Mozambique

Hinkkanen J (2008) ICT Adviser Project: Activity and Impact Report 2008, Annual Work Plan (AWP) 2009

Hinkkanen J (2007) ICT Adviser Project – Summary of 2007,– Plans for 2008 –

Hinkkanen J (2009 Minutes of the Annual Tripartite Meeting of the 'ICT Adviser for the Minister of Science and Technology'

Hinkkanen J (2010) Final Report: ICT Adviser for the Minister of Science and Technology Project

Hinkkanen J (2010) Minutes of the Annual Tripartite Meeting of the 'ICT Adviser for the Minister of Science and Technology'

Hinkkanen J ICT (2006) Adviser Project – Summary of 2006, Plans for 2007, Summary of 2007

ICT Adviser Project Trimester report April to June 2009

ICT Adviser Project Trimester report January to March 2009

ICT Adviser Project Trimester report January to March 2010

ICT Adviser Project Trimester report May to July 2010

ICT Adviser Project Trimester report October to December 2008

Institutional Websites as Ambassadors for Educational Technologies?

Maguni L (2010) Minutes of the Annual Tripartite Meeting of the 'ICT Adviser for the Minister of Science and Technology'

Massingue V (2008) Proposal for Bilateral Collaboration between Finland and Mozambique in the Area of Science, Technology and Innovation

Ministry of Science and Technology (undated) Mozambique e-Government and Communication Infrastructure Project: Letter of Sector Policy

Ministry of Science and Technology (2006) Activity Report of ICT Adviser Project 2006

Ministry of Science and Technology (2007) Activity Report of ICT Adviser Project 2007

Ministry of Science and Technology (2007) Mozambique Research and Education Network Proposal

Ministry of Science and Technology (2007) Mozambique Research and Education Network Ford Foundation Proposal

Ministry of Science and Technology (2008) Activity and Impact Report of the 'ICT Adviser for the

Minister of Science and Technology Project January to December 2007

Ministry of Science and Technology (2008) Activity Report of ICT Adviser Project 2008

Ministry of Science and Technology (2009) Consultancy Mission: Finnish Bilateral Project in Science, Technology and Innovation 22nd-26th of June

Ministry of Science and Technology (2009) Pricing Strategy of Mozambique Research and Education Network (MoRENet) Version 0.4

Ministry of Science and Technology (Undated) Mozambique e-Government and Communication Infrastructure Project

Ministry of Science and Technology Mozambique (2008) Concept Paper for Bilateral Cooperation between Finland and Mozambique in the Area of Science, Technology and Innovation

Ministry of Science and Technology, UNDP (2007) Activity Report of ICT Adviser Project

Ministry of Science and Technology (2010) ICT Adviser Project Handover report

OECD Policy Brief (2003) Integrating Information and Communication Technologies in Development Programmes

OECD Policy Brief (2003) The e-government imperative: main findings www.oecd.org/gov/egov

Republic of Mozambique (2000) Information, Communication and Technology Policy

Republic of Mozambique (2006) National e-Government Strategy

Republic of Mozambique (2002) ICT Implementation Strategy

Republic of Mozambique (2006) Action Plan for the Reduction of Absolute Poverty 2006-2009 (PARPA II)

Republic of Mozambique (undated) E-Government for Development Programme

Sarrazin T (2011) Texting, Tweeting, Mobile Internet: New Platforms for Democratic Debate, FNF

UNDP (2006) United Nations Development Assistance Framework 2007-2009, Mozambique

UNDP (2008) Annual Work Plan for ICT Advisor for Minister of Science and Technology

UNDP (2009) Annual Work Plan for ICT Advisor for Minister of Science and Technology

UNDP (2010) Annual Work Plan for ICT Advisor for Minister of Science and Technology

UNDP Mozambique (Undated) CPAP 2006 – 2009

UNDP, Government of Mozambique (2002) ICT for Development Programme

UNESCO (2011) New Broadband Commission report seeks to bring high-speed connectivity to world's poorest communities

Zeininger C (2009)The Use of Information and Communication Technologies (ICTs) in Higher Education Institutions in Mozambique:

Appendix 2: List of People Interviewed

Engineer Dr. Venancio Massingue	Minister of Science and Technology
Ms. Naomi Kitahara	UNDP Deputy Resident Representative
Dr Salomao Manhiça	Director, INTIC
Jose Macamo	Head, Governance Unit UNDP
Mr Robert Mmaitsi	Programme Officer, Governance Unit, UNDP
Ms Eeva Alarcón	Senior Adviser, Ministry for Foreign Affairs, Finland and formerly with the Finnish Embassy in Maputo, responsible for the Advisor Project
Engineer Lourino Chemane	Coordinator of MEGCIP
Ms Ludmilla Maguni	Coordinator of the Advisor Project
Jussi Hinkkanen	Former Advisor to the Minister of Science and Technology
Engineer Assane Cipriano	MoRENet
Mr. Juvencio Manjate	MoRENet
Mr Sergio Arnaldo	Head of e-government programme, INTIC

Appendix 3: Terms of Reference for the 2011 ICT Advisor Final Project Evaluation

1. BACKGROUND

United Nations Development Programme has through Ministry of Science and Technology been implementing the "ICT Adviser for the Minister of Science and Technology" project with the financial support from Government of Finland since February 2006. The General Objective of the project was to provide support for decision-making and capacity building in the area of Information and Communication Technologies in the Ministry of Science and Technology by providing technical assistance in the form of an Adviser to the Minister.

The project funds were primarily designed to be used for facilitating implementation of previously mentioned strategic activities and to conduct studies, not to support implementation of large scale projects.

Since the project ended on the 31st of December 2010, the joint decision of the tripartite Steering Group of the project is to capture the lessons learnt and best practices of the project in the form of an evaluation. On the other hand, it is considered essential that the UNDP's internal exercise be carried out to ensure strategic thinking and programmatic positioning of UNDP given the aid environment in Mozambique. As such, the ICT Advisor project evaluation has to be conducted in line with UNDP corporate guidelines and requirements.

The findings and recommendations of the ICT Advisor project evaluation will be integrated to the UNDP CP strategy development process.

2. PURPOSE OF THE EVALUATION

It is expected that a project should be evaluated at least once during its life time, as a means of determining its continued appropriateness and relevance to the changing national development priorities and the recent developments elaborated in the preceding sections render the current exercise of great significance.

The main achievements expected from the project period are the contribution for the attainment of the MDGs in Mozambique. The intended outputs of the project included the following components, costing about Euro 920, 000.00:

1. Development of the human capacities of Ministry of Science and Technology
2. Integration of ICTs to Science and Technology programmes, policies and strategies,
3. Integration of ICTs to national development programmes, policies and strategies,
4. Development of ICT framework and e-Government applications for the Government of Mozambique,
5. Provide support for the formulation of Mozambican ICT Institute (MICTI) and development of current ICT and S&T education,
6. Identification of new areas for ICT and Science and Technology inclusion,
7. Support implementation of MCT priority projects and
8. Inclusion of ICTs to poverty alleviation initiatives.

3. SCOPE OF THE EVALUATION

Furthermore, in accordance with UNDP programme procedures, the Ministry of Science and Technology and UNDP have agreed to undertake an evaluation of ICT Advisor project in Mozambique, in terms of its efficiency, effectiveness, appropriateness, relevance, impact and sustainability, translated into:

- assess the appropriateness of the design and choice of ICT Advisor project areas of response/programme areas, on the basis of UNDP mandate and comparative advantage;
- assess progress towards achieving the stated project outputs, taking into account cross cutting-issues such as human rights, , capacity development, institutional strengthening and innovation or value added to national development and make recommendations on the relevance of the outputs accordingly;
- assess the impact of activities carried out under each of the project components, especially with regards to developing capacity;
- assess the extent to which the project components have contributed to the achievement of the CPAP objectives and overall support to the operations of the UNDP in Mozambique;
- document best practices and lessons learnt in the course of project implementation, including but not limited to, implementation of RBM, resource application and monitoring and evaluation of progress, to inform the development of next CP strategy;
- document and assess the changes in the national development scene and context, including the proposed extension of the CPAP, and their implications for the continued relevance and sustainability of the ICT's programmes and projects;
- assess the appropriateness of implementation arrangements, including but not limited to, organizational structure, managerial support and coordination mechanism used by UNDP to support the project for the effective and efficient attainment of stated objectives and expected results ;
- document challenges encountered and enumerate what needs to be done, how and by who, in order to make the ICT Advisor project more responsive and better aligned to national development priorities while at the same time making greater contribution to the CPAP and ensuring sustainability of the programmes.
- identify operational issues and bottlenecks in the implementation of the project, implementation modalities and frameworks, and advise on any required change in terms of outputs, implementing partners, and allocation of resources and make recommendations;
- Assess facilitation factors for implementation of the project.

4. METHODOLOGY

It is proposed that a combination of methodological approaches be used to ensure that the most appropriate methods will be applied throughout the exercise. These approaches include, but are not limited to the following:

- Desk review of all the relevant documents including the UNDAF, CPD, CPAP, AWP's, National Development Plan (PARPA), the various Project Documents, field visits/monitoring reports, programme/project management meeting reports, reports of Steering Committee Meetings and other project and programme review meetings.
- Interviews with key informants
- Field visits to selected sites as appropriate to meet with beneficiaries/stakeholders and other key stakeholders
- Analyses and synthesis of all relevant data and information and subsequent compilation of succinct report addressing the full range of scope of work outlined above

The consultants will be expected to clearly document and explain their justification for the choice of methodological approach(es) to be used in this process, including planned surveys and questionnaires. The review team shall visit the provinces and all project sites at district level as needed, interviewing project stakeholders and visiting project activities.

The methodology and the work schedule prepared by the team shall be discussed and agreed with the Country Office Senior Management and the National counterpart at the beginning of the mission before proceeding with the collection of data and interviews with the Project stakeholders.

5. EXPERTISE REQUIRED

The consultant should have a minimum of a first level University degree in Information Technology, Public Administration, Development Studies or a related area.

- At least 5 years of proven experience in ICT Project Management, monitoring and evaluation.
- Proven expertise in evaluating programmes/projects for UN System or other international organizations will be an asset.
- Experience in implementation of donor funded projects;
- Adequate experience in working in multi-cultural environments, with senior Government officials as well as civil society organizations;
- Experience in implementation of Management Information Systems as well as ICT for Development Initiatives in developing countries particularly within the region
- Good command of written and spoken English, Portuguese as added advantage.

The evaluator must be independent from both the policy making process and the delivery and management of assistance.

6. PLANNING AND IMPLEMENTATION ARRANGEMENTS

The consultant will report and be accountable to UNDP, through the Head of Governance Unit. He will work with project staff from UNDP, the Government Coordinating Agency, other Government Departments and national institutions benefiting from the various components of the project. UNDP will organize all logistical arrangements, including field travel, as may be necessary.

UNDP Mozambique will:

- Provide the consultant with all the necessary support (not under the consultant's control) to ensure that the consultant(s) undertake the study with reasonable efficiency.
- Appoint a focal point in the programme section to support the consultant(s) during the evaluation process.

- Collect comprehensive background documentation and inform partners and selected project counterparts.
- Support and identify key stakeholders to be interviewed as part of the evaluation.
- Organize inception meeting between the consultants, partners and stakeholders, including Government prior to the scheduled start of the evaluation assignment.

The evaluation of the proposals will be based on the cost-quality criteria, being 70% for technical and 30% for financial proposal. The technical and financial proposal must be delivered at the UNDP Office in separate envelopes.

Deliverables

The consultants will be expected to prepare and present the following set of deliverables:

1. Inception report. It should explain the timeframe, methodologies, and planned interviewees, and it has to be agreed and approved by UNDP and government. **(3 days)**

2. Draft ICT Advisor project evaluation report. The report shall analyse the areas presented in the present ToRs, evaluate and provide recommendations where necessary in order to improve the project performance and efficiency. The two copies of the draft reports (English and Portuguese versions) shall be submitted ten days before a presentation with UNDP, the Government Coordinating Authority and other stakeholders who have been part of the evaluation process. **(10 days)**

3. ICT Advisor project evaluation meeting. At this meeting, the Government Coordinating Authority, UNDP and the donor representatives will review the draft evaluation report as a whole, taking into consideration the conclusions and recommendations obtained from the individual project component evaluation. This meeting will discuss final conclusions and recommendations of the evaluation. **(3 days)**

4. Final ICT Advisor evaluation report, which should include **(4 days)**:

- An assessment of the progress in achieving the project outputs and their contributions to and associated impact on CPAP outputs and outcomes and, importantly, national development priorities;

- Documentation of best practices and challenges encountered in the implementation of the project, including an assessment of the appropriateness of the project implementation arrangements; an assessment of present and emerging national development priorities and how the project can be better positioned to respond to these priorities.

The report must be produced in line with UNDP evaluation report format and quality control checklist for its content, with an executive summary describing key findings and recommendations. The assessment will entail, *inter alia*:

1) A report containing (Hard copy, a soft copy in MS Word and Acrobat reader, Times New Roman, Size 12, Single Spacing):

- Executive summary
- Introduction, description of the evaluation methodology

- An analysis of key interactions (the outcome, substantive influences, UNDP's contribution and how UNDP works with other relevant actors) and associations between variables measuring the outcome,
- Key lessons learnt, highlighting key factors that might hamper the impact of project and suggesting possible recommendations,
- Conceptual Framework to the project in terms of future programming and policy
- Assumptions made during the evaluation and study limitations, and
- Conclusions and recommendations
- Annexes: ToRs, field visits, people interviewed, documents reviewed, etc

Work Plan and Timetable

The duration of the mission will be 20 days, including the preparation of the work-plan, collection of data, interviews, analysis, report drafting, feedback, editing and report finalisation, as per table below.

List of Documents

UNDAF, AWP, PARPA, CPAP

Item	Week 1	Week 2	Week 3	Deliverables
Submission of the inception report	X			Proposed methodology and mission work plan
Approval of work plan by UNDP and IP's	x			N/A
Desk review, collection of data, field visits and interviews	x	X	X	N/A
Analysis and report drafting		X	X	N/A
Submission of draft report			X	A draft mission report in hard and soft copy
Meeting for presentation of findings and feedback collection			x	N/A
Editing and Report finalization			x	Hard and soft copy of the final mission report