An ICT Professional Development Implementation Plan for Educators in St Vincent and the Grenadines

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1 Acronyms

CARICOM	Caribbean Community and Common Market
CC	Creative Commons
COL	Commonwealth of Learning
CTPD	Continuing Teacher Professional Development
CSEC	Caribbean Secondary Education Certificate
CFT	Competency Framework for Teachers
CITE	Committee for Integration of Technology in Education
CST	Competency Standards for Teachers
CXC	Caribbean Examination Council
EMIS	Education Management and Information System
EU	European Union
IDB	Inter-American Development Bank
ICT	Information and Communication Technology
ICT4D	Information and Communication Technology for Development
ISTE	International Society for Technology in Education
IT	Information Technology
M&E	Monitoring and Evaluation
MoE	Ministry of Education
NETS	National Educational Technology Standards
OAS	Organisation of American States
ODL	Open and Distance Learning
OER	Open Educational Resources
OLPC	One Laptop Per Child
SSTC	Student Support Technician Clubs
SVG	St Vincent and the Grenadines
SVGCC	St Vincent and the Grenadines Community College
UNESCO	United Nations Educational Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UWI	University of West Indies
VLE	Virtual Learning Environment

2 Summary

The Ministry of Education (MoE) of St Vincent and the Grenadines (SVG) recognizes the potential role of Information and Communication Technologies (ICT) in accomplishing its mission and has identified ICT as one of its 'guiding values and principles'. As part of achieving this, the MoE has developed a draft policy on ICT in education, which is consistent with the thrust of the Ministry of Education to ensure that 'new technologies' are implemented in a systematic manner.

SVG has a highly ambitious vision for ICT in education in the country, with a clear goal of ensuring that 1:1 learning environments are implemented in all schools, at both primary and secondary levels. There has been rapid expansion of ICT infrastructure and connectivity during 2011, and an impressive range of professional development activities to support this rollout. Having noted this, though, the initiative is obviously still in its infancy, and thus progress in 2012 will be critical to ensuring stability, sustainability, and educational effectiveness of this significant investment.

Given this, there are several key short-term priorities identified by the SVG MoE:

1) There is a need to put in place a long-term maintenance and replacement plan for the netbooks and other ICT infrastructure deployed into system. This will need to include a strategy for procuring new netbooks for new learners entering the system.
2) Implementation of a Roadmap for growth in school connectivity to enable online services and use of SVGeNET. Although there is a good plan in place to ensure that all schools access good connectivity over the next few months, it is likely that, within the next year or so, the bandwidth being supplied through the current contract will not meet demand in the system. Thus, it may be worth discussing with the telecommunications provider some options for increasing this connectivity without increased cost over the life of the contract.
3) Implementation of a rolling, three-year professional development plan, which focuses on Education Officers, school administrators (principals, vice-principals, and heads of department), pre-service and in-service teachers, technology coordinators, and students.

This document focuses on the last key priority, presenting a proposed three-year professional development strategy for educators in St Vincent and the Grenadines.

Design of the ICT Professional Development Strategy for Educators in SVG has been based on the following key principles and assumptions:

1) It is expected that in design/selection of professional development courses:
   a) All courses will be competency-based;
   b) The courses will include appropriate blends of face-to-face learning, in-school activities, and use of e-learning.
2) This Strategy focuses on integrating the United Nations Educational Scientific and Cultural Organization (UNESCO) ICT Competency Standards for Teachers (CST) into the curriculum design of all courses.
3) Once in-service professional development courses aligned to the UNESCO ICT CFT have been approved by the SVG National Accreditation Board, the Ministry will seek to submit

relevant in-service courses and modules that it designs to the Virtual University for Small States of the Commonwealth (VUSSC) Transnational Qualifications Framework (TQF) for inclusion in the TQF.

4) The ICT Professional Development Strategy for Teachers will construct clear learning pathways for SVG teachers to move progressively from technology literacy to knowledge deepening through both pre-service teacher training and continuing professional development.
5) Courses and modules produced through the ICT Professional Development Strategy for Educators will build on and adapt existing national and international courses and modules wherever possible.
6) The ICT Professional Development Strategy for Educators will facilitate sharing of all courses/modules and associated educational materials by releasing them as Open Educational Resources (OER) under an appropriate Creative Commons (CC) licence.
7) Regarding future implementation of ICT in SVG schools, it is assumed that:
   a) School administration teams will be expected to develop ICT Integration Plans as a key component of their overall School Plans.
   b) In order to ensure that all teachers are able to support students effectively to derive maximum educational benefit from a 1:1 learning environment, teachers (including pre-service teachers at the Teacher's College) will also be supplied their own netbooks, thus removing the need to arrange dedicated computer laboratory facilities for training purposes.
   c) There will be sustained increases in Internet connectivity at all schools in SVG in order to leverage the educational benefits of 1:1 learning most effectively.

This Professional Development Strategy focuses on the following key target groups:

1) School administrators (principals, vice-principals, and heads of department) and ICT Integration Support Team members;
2) Pre-service teachers;
3) In-service teachers;
4) Technology Coordinators;
5) Students; and
6) Education Officers.

The immediate focus for professional development will be to develop a multi-tiered support structure for teachers, which provides the necessary support and monitoring to ensure effective use of the extensive ICT infrastructure that has been deployed in SVG. This support structure will comprise:

1) A supportive school environment, with a comprehensive ICT Integration Plan being developed by the ICT Integration Support Team in consultation with all key players, which serves to ensure that school administrators (and especially principals) are supportive of teachers' efforts to use ICT effectively in their classrooms and that school targets in this regard are formally monitored.
2) A first line of support for teachers being provided within the school through Technology Coordinators, and Student Support Technicians' Clubs. Technology Coordinators particularly will be developed to provide ongoing pedagogical support to all teachers within schools regarding effective ICT Integration.

3) Access to three levels of professional development support for teachers, which seek to move them systematically from Basic ICT Readiness to Technology Literacy to Knowledge Deepening levels of competence (and, for some, beyond to Knowledge Creation). This professional development will be made accessible on an ongoing basis from the beginning of 2012, using Education Officers as facilitators.
4) A teacher supply system (through the pre-service teacher education programme) which ensures that all new teachers entering the system have already attained the Knowledge Deepening level of competence, so that the requirement for ongoing professional development declines systematically over four years.
5) Access to online communities of practice, through which educators in SVG can share knowledge, resources, and experiences, as well as seeking support from their peers.

Much of this support structure is already in place within SVG, and its establishment will be accelerated through implementation of this Strategy.

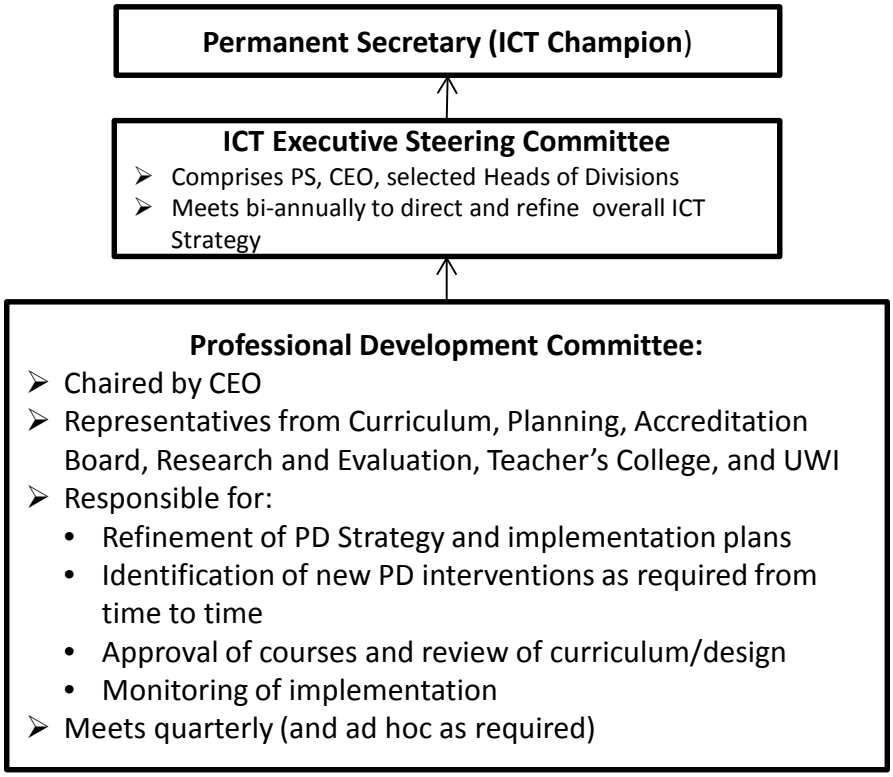
Notional targets for each in-service professional development course are presented below. It is important to note that the key constraint in enrolments is the number of mentors available to facilitate courses (numbers below are based on an assumption that each group of 20 students will require one mentor/facilitator).

Table 1 Notional In-Service Course Enrolments

In-Service Course	2012			2013			2014			Total
CCTI	50			50			50			150
Basic ICT Readiness Assessment	25	25	25	25	25	25	N/A	N/A	N.A	150
Basic ICT Readiness	N/A	25	25	25	25	25	25	N/A	N.A	150
Technology Literacy for Teachers	150	150		150	150		150	150		900
Knowledge Deepening for Teachers	N/A			75	75		75	75		300
ICT Integration for Administrators	180			180			180			520
ICT Integration for Technology Coordinators	90			90			90			90
SSTC course	180			360			720			1,260

A simple management structure is proposed for the Professional Development Strategy, which envisages the Ministry of Education assuming overall oversight responsibility for Implementation and is in line with structures already in place in the country and in line with the existing ICT in education policy. The management structure can be represented diagrammatically as follows:

Figure 1 ICT Professional Development Management Structure



Provision has been made for ongoing monitoring and evaluation of the ICT Professional Development Strategy for Educators in SVG. It is envisaged that this will comprise three key elements:

1) Completion of a detailed baseline survey to determine the level of ICT competence of teachers in SVG during 2012;
2) Design, development, and maintenance of a Monitoring System designed to track delivery of capacity building in response to the gaps identified in the baseline survey, updated in real time by the agencies delivering professional development, so that progress in delivery can be monitored on an ongoing basis;
3) Commissioning in the second year of implementation of a comprehensive external evaluation study, with biennial formative evaluation reports designed to feed into and improvement implementation of the ICT Professional Development Strategy for Educators in SVG.

3 A Professional Development Implementation Plan

3.1 Background

The Mission of the Ministry of Education of St. Vincent and the Grenadines (SVG) is

> *to provide all persons of the state, especially the Youth, with opportunities appropriate to their development needs, through the provision of quality Education - academic, technical-vocational, moral, physical - and Sports which will equip them with the values, attitude, knowledge and skills, necessary for creating and maintaining a productive, innovative and harmonious society.*

The Ministry of Education (MoE) also recognizes the potential role of Information and Communication Technologies (ICT) in accomplishing its mission and has identified ICT as one of its 'guiding values and principles'. The Ministry of Education states, in the Education Sector Development Plan (2002-07), that:

> *New technologies will be adopted as tools to continue to improve teaching and learning and to ensure that learners in St. Vincent and the Grenadines are technologically literate to be able to access national, regional and world-wide employment opportunities."*

As part of achieving this, the MoE has developed a draft policy on ICT in education, which is consistent with the thrust of the Ministry of Education to ensure that 'new technologies' are implemented in a systematic manner and also the National ICT Objectives of St. Vincent and the Grenadines, outlined in the Draft National ICT Strategy and Action Plan for 2010-2015, which reflects the need 'to establish mechanisms that utilize ICT in the education sector which will facilitate a better quality of life through life-long learning'. The mission and vision for ICT in education expressed in that policy are:

> ***ICT Vision:*** *Information and Communications Technology - positively impacting on the teaching-learning environment of educational institutions in St. Vincent and the Grenadines.*
>
> ***ICT Mission:*** *To enhance education and training through the appropriate use of Information and Communications Technology, enabling citizens to function effectively in a knowledge-based society.*

The policy maps out in some detail progress in implementation of ICT in education, which is not repeated in this report. However, in summary, it is worth noting that SVG is in the midst of a very ambitious drive to deploy ICT infrastructure into schools. Notably:

1) Under the 'Improvement of Education Through the Use of ICT' Project, funded by the European Union (EU), extensive ICT infrastructure has been procured for schools in the form of computers and laptops, electronic whiteboards, printers, scanners, and data projectors.
2) SVG has secured over 30,000 netbooks through its One Laptop Per Child (OLPC) Initiative, which are currently being provided to students and teachers throughout the education system, with approximately half of these having already been distributed. This ambitious initiative is intended to create a 1:1 learning environment (i.e. an environment where every student has his or her own ICT device), which introduces significant new possibilities for organizing and managing education more effectively in schools.

3) To support the above work, Technology Coordinators have been appointed in every school in SVG and provided initial training on this role. These appointments are existing teachers, who have taken this responsibility on in addition to their teaching load.
4) The SVG eNetwork (SVGeNET) has been conceptualized as a major e-services platform designed to facilitate ongoing administration, communication, and interaction between schools, the MoE, and other key stakeholders.
5) A rolling programme of professional development has been implemented over the past few years, comprising a wide range of professional development activities. This has included (amongst others):
   a) A sub-regional training programme conducted in 2002 for Mathematics, Language Arts, and Information Technology (IT) teachers. This focused on the integration of ICT into the learning outcomes of Mathematics and Language Arts. Eight teachers from secondary schools in SVG benefited from this programme, which was later piloted in two secondary schools. To complement this initiative, an additional 225 – including ten lecturers at the Division of Teacher Education, SVG Community College (SVGCC) – received similar training.
   b) Training in 2003/04, for 17 people, including 12 teachers, who completed the CompTIA A+ - Computer Technician programme. An additional 37 teachers received training in computer maintenance and Network Plus during 2005/2006. Over the period 2007 to 2008 additional training in computer maintenance was also conducted for 30 teachers; this programme was financed under the 9th EDF project.
   c) A sequence of three-day workshops on Productivity Tools, starting in July, 2010 and ending in October, 2011. Just over 200 people were trained including primary and secondary teachers, TVET, SVGCC (Nursing), and ACE personnel, and Curriculum Development Unit personnel.
   d) A sequence of workshop on Using the Internet for Teaching and Learning, workshops, starting in October 2010 and ending in October 2011. About 150 people, including - teachers and SVGCC (Nursing) and ACE personnel were trained.
   e) Two five-day workshops were held in August, 2010 for 10 teachers each, on Computer Maintenance.
   f) A series of workshops aimed at Technology Coordinators in schools is currently being implemented. This introductory three-day workshop series is being provided for Technology Coordinators from every school in SVG, in order to introduce them to their role as Technology Coordinators.
   g) A series of professional development activities (comprising three workshops with related activities occurring in between the workshops) has been implemented. Again, this targets all principals in schools in SVG.
   h) A ten-day workshop on production for e-learning has been held for media unit personnel and teachers (approximately 20 participants in total) in November, 2011 and will be followed by a second 10-day event for the same participants in December.
   i) Professional development workshops have also been provided to Education Officers and the Committee for Integration of Technology in Education (CITE). Using these as a platform, Education Officers are now starting to provide structured support to teachers in schools, to help them make effective use of netbooks in the classroom. One-day workshops are currently being run by Education Officers for teachers (with four teachers per school participating), combined with follow-up classroom activities

and school visits being undertaken to ensure that skills developed are applied in the classroom.

j) Fifteen teachers have been enrolled in a Certificate in ICT Curriculum Integration at the University of the West Indies (UWI). They are completing this three-month programme through distance education.

6) A five-year contract has been awarded to a telecommunications provider to deliver connectivity to every school in the country (with connections ranging from 8 to 18 Mbps). Rollout of this connectivity is taking place in late 2011, with associated teething problems, but is expected to be complete in the next few months. As this bandwidth is funded from a Universal Services Fund, this connectivity has a sustainable income source, although there might be need to increase the available bandwidth over the life of the contract to meet growing demand from schools.

From this sample of activities, it can be seen that SVG has a highly ambitious vision for ICT in education in the country, with a clear goal of ensuring that 1:1 learning environments are implemented in all schools, at both primary and secondary levels. There has been rapid expansion of ICT infrastructure and connectivity during 2011, and an impressive range of professional development activities to support this rollout. Having noted this, though, the initiative is obviously still in its infancy, and thus progress in 2012 will be critical to ensuring stability, sustainability, and educational effectiveness of this significant investment. Simultaneously, the significant support that has been provided through the EU Project will be coming to an end, and this has provided most of the funding for recent professional development activities.

Given this, there are several key short-term priorities identified by the SVG MoE:

4) There is a need to put in place a long-term maintenance and replacement plan for the netbooks and other ICT infrastructure deployed into system. This will need to include a strategy for procuring new netbooks for new learners entering the system.
5) Implementation of a Roadmap for growth in school connectivity to enable online services and use of SVGeNET. Although there is a good plan in place to ensure that all schools access good connectivity over the next few months, it is likely that, within the next year or so, the bandwidth being supplied through the current contract will not meet demand in the system. Thus, it may be worth discussing with the telecommunications provider some options for increasing this connectivity without increased cost over the life of the contract.
6) Implementation of a rolling, three-year professional development plan, which focuses on Education Officers, school administrators (principals, vice-principals, and heads of department), pre-service and in-service teachers, technology coordinators, and students.

This document focuses on the last key priority, presenting a proposed three-year professional development strategy for educators in St Vincent and the Grenadines.

3.2 Key Principles and Assumptions

Design of the ICT Professional Development Strategy for Educators in SVG has been based on the following key principles and assumptions:

8) It is expected that in design/selection of professional development courses:
   a) *All courses will be competency-based*, both in design of the curriculum and materials and in terms of how assessment is conducted.
   b) The courses will include *appropriate blends of face-to-face learning, in-school activities, and use of e-learning* (with the latter combining both use of Virtual Learning Environments – VLEs – and existing social networking platforms, which many teachers are already accessing on a regular basis). To minimize expenses, it is proposed that the MoE consider deploying a single VLE to be shared by all participants in the process. This approach will serve to ensure that the professional development activities have a direct and measurable impact on classroom practices, with support provided to teachers at various levels to enable them to implement the skills they acquire through professional development activities as soon as they have learned them.

9) This Strategy focuses on *integrating the United Nations Educational Scientific and Cultural Organization (UNESCO) ICT Competency Standards for Teachers (CST)* into the curriculum design of all courses, as this set of Standards effectively identifies the teacher as central in developing student ICT capabilities. The UNESCO ICT Competency Framework for Teachers (CFT) creates a common core syllabus that can be used to develop learning materials sharable at a global level, provides a basic set of qualifications that allows teachers to integrate ICT into their teaching; extends teachers' professional development so as to advance their skills in pedagogy, collaboration, and school innovation using ICT, and harmonizes different views and vocabulary regarding the uses of ICT in teacher education.

10) Following on from the above, once in-service professional development courses aligned to the UNESCO ICT CFT have been approved by the SVG National Accreditation Board, the Ministry will seek to *submit relevant in-service courses and modules that it designs to the Virtual University for Small States of the Commonwealth (VUSSC) Transnational Qualifications Framework (TQF) for inclusion in the TQF*, in order to ensure that all professional development provided within the SVG ICT Professional Development Framework for Educators is internationally recognized.

11) The ICT Professional Development Strategy for Teachers will *construct clear learning pathways for SVG teachers* to move progressively from technology literacy to knowledge deepening through both pre-service teacher training and continuing professional development.

12) Courses and modules produced through the ICT Professional Development Strategy for Educators will *build on and adapt existing national and international courses and modules* wherever possible, in order to reduce the costs of development and to improve the quality of the courses offered. Examples of sources of existing content that will be explored for possible use will include:
   a) Resources and courses available through the Commonwealth of Learning, most notably within the recently re-designed Commonwealth Certificate for Teacher ICT Integration (CCTI), which is an Advanced Certificate in Education designed in

accordance with the UNESCO ICT CFT and aimed at teachers and school leaders wishing to focus on ICT integration into school management, teaching, and learning;

b) Materials and courses from Microsoft's Partners in Learning Programme and the Intel Teach Programme (although taking into account the need to ensure that any references are to software applications being used on Netbooks in SVG, which are OSS applications);
c) Courseware and materials produced through the professional development activities already implemented in SVG.

13) Extending the principle of harnessing existing content, the ICT Professional Development Strategy for Educators will also facilitate sharing of all courses/modules and associated educational materials by *releasing them as Open Educational Resources (OER) under an appropriate Creative Commons (CC) licence,* so that they are openly accessible and shareable between the key participating institutions, as well as being accessible to all schools in SVG and to the broader global education community.

14) Regarding future implementation of ICT in SVG schools, it is assumed that:
a) School administration teams will be expected to develop ICT Integration Plans as a key component of their overall School Plans in order to demonstrate clearly how they expect to harness the extensive investments in ICT. This work has already begun through professional development workshops in 2011.
b) In order to ensure that all teachers are able to support students effectively to derive maximum educational benefit from a 1:1 learning environment, teachers (including pre-service teachers at the Teacher's College) will also be supplied their own netbooks, thus removing the need to arrange dedicated computer laboratory facilities for training purposes. Allocations for these laptops will need to be made from the upcoming shipments of netbooks.
c) There will be sustained increases in Internet connectivity at all schools in SVG in order to leverage the educational benefits of 1:1 learning most effectively. Teachers will be able to use this connectivity to access online/blended professional development courses and participate in relevant online communities of practice.

3.2.1 Overview of Professional Development Needs

It is possible to analyse the specific requirements of each of the target groups of this Professional Development Strategy, namely:

7) School administrators (principals, vice-principals, and heads of department) and ICT Integration Support Team members;
8) Pre-service teachers;
9) In-service teachers;
10) Technology Coordinators;
11) Students; and
12) Education Officers.

The professional development requirements of each group are outlined below.

School Administrators (Principals, vice-Principals, and Heads of Department) and ICT Integration Support Team Members

The growing consensus is that, for instructional technologies to be implemented successfully, leadership and administrative support are critical. This means that it is important that school principals – who make policy and financial decisions – are trained in educational technology and have the resources they require to make informed decisions.

To ensure effective use of ICT at school, it is imperative that leadership in schools is supported in the role of ICT leadership for the school. The principal need not be the ICT champion, but he/she does need to be aware of debates surrounding use of ICT in education and of the important role that leaders play in ensuring successful use. Leaders need to be aware of the consequences of working with and maintaining ICT facilities, as well as the financial implications thereof. It is imperative that, after initial training, leaders become part of a broader community of practice (which is already running successfully on the Edmodo platform), attending ICT conferences, receiving quarterly circulars, e-mail newsletters, participating in online discussion forums, and sharing expertise and experiences.

In addition, there may also be requirements to include specific focuses on use of specialized platforms, including: human resource management systems; education management information systems; communication platforms; portals to access government and systems information and education content; administration and management systems; financial and accounting systems; security software; timetabling systems; and office productivity tools.

Building on the professional development work done during 2011, the focus in professional development in SVG will be on supporting school administrators and ICT Integration Support Team members to attain levels of competence as defined in the National Educational Technology Standards (NETS) for Administrators of the International Society for Technology in Education (ISTE)[1], with the next phase of professional development drive being to ensure that all schools develop and implement effective ICT Integration Plans. These plans should include, at least:

- A long-term vision for use of ICT in the school;
- Codes of conduct for ICT usage by learners, teachers, management and administration, and the wider community;
- Curriculum policies outlining how the school intends to use ICT to support teaching across learning levels and learning areas/subjects;
- A detailed assessment of ICT requirements;
- Timetables outlining how ICT will be integrated into the school's operations, and what levels of access will be made available to which learners;
- Professional development strategies on use and integration of ICT in educational, management, and administrative tasks;
- School strategies to cover operating costs of ICT; and
- Strategies for ICT support and maintenance.

Through this process, it is expected that:

[1] See http://www.iste.org/standards/nets-for-administrators.aspx.

1) All schools will, by the end of 2012, have prepared detailed ICT Integration Plans (based on a template to be supplied by the MoE) as an integrated component of their overall School Development Plans, implementation of which will be supported and monitored by the MoE. This will build on work already commenced during 2011.
2) School administrators will receive ongoing support through online communities of practices, in-school visits from Education Officers, and access to relevant professional development activities available from 2013 onwards to develop their capacity to manage implementation of their ICT Integration Plans.

Teachers

Teachers are at the heart of delivery of the curriculum. Teacher professional development in use of ICT is best introduced in a context of broader educational reform, which embraces a shift away from teacher-centred, lecture-based instruction toward student-centred, interactive, constructivist learning. Teacher professional development is essential if ICT in schools is to be used effectively. Thus, ongoing teacher training and professional development offerings are vital for successful use of ICT in education. Teachers play a pivotal role in the adaptation and integration of ICT in education as they are a key element in curriculum implementation and innovation. Studies show that insufficient understanding of the scope of an ICT resource leads to inappropriate or superficial uses in the curriculum.

To harness ICT effectively in support of curriculum delivery, teachers require substantial support and stimulation to change entrenched practices. This support includes general approaches to integration of ICT within teaching and learning, support within specific areas of a subject specialization, and training and support on effective use of specific ICT applications and digital education content offerings. To support this, UNESCO's ICT Competency Standards for Teachers[2] are located within a broader policy context of educational reform and sustainable development which views education as a cultural relay that inculcates societal values including the role of the citizen in economic development.

For UNESCO, educational change through ICT encompasses three approaches: technology literacy, knowledge deepening, and knowledge creation, and these approaches have different implications for pedagogy, teacher practice and professional development, curriculum and assessment, and school organization and administration. In relation to pedagogy, the use of ICT requires teachers to develop skills to develop innovative ways of using technology to enhance the learning environment, and to encourage technology literacy, knowledge deepening and knowledge creation. As such, teacher professional development has to focus on developing teachers' knowledge and skills to develop technology literacy, knowledge deepening, and knowledge creation in relation to components of the educational system, that is, policy, curriculum and assessment, pedagogy, the use of technology, school organization and administration, and teacher professional development.

According to UNESCO, the three approaches to educational reform have different demands for teacher education, with the technology literacy approach being the most basic and requiring the most basic policy changes as the aim of this approach is to encourage and

[2] See http://cst.unesco-ci.org/sites/projects/cst/default.aspx

facilitate student uptake of new technologies to support social and economic development. Professional development aimed at supporting the technology literacy approach focuses on developing teachers' technological literacy to integrate basic ICT tools into the curriculum. This technology literacy approach requires a focus on equitable distribution of technological resources to enable access by as wide a population as possible to lessen the digital divide. The outlay of technological tools at this stage is a precursor for possible success of all three approaches to educational development.

Knowledge deepening educational changes are deeper and they are likely to have greater impact on learning. Knowledge deepening requires students as citizens to apply school knowledge for complex problem solving in the workplace to add value to national development, for example through innovation that provides solutions to national challenges. To achieve this approach to educational reform, teacher professional development should focus on providing teachers with the knowledge and skills to use more complex methodologies and technologies. Change in the curriculum should include establishing a complex relationship between school knowledge and real world problems and can involve collaboration between students at local and global levels with the teacher managing the learning environment.

The knowledge creation approach to educational improvement is the most complex as it aims to create a citizenry that engages in and benefits from knowledge creation, innovation, and participation in lifelong learning. Curriculum changes to achieve the aims of this approach are inculcating skills in collaboration, communication, creative thinking and innovation and critical thinking. Teachers can model these skills to their students through their own professional development where they develop more sophisticated skills on using technology and collaborate with peers to design projects that challenge students to exercise the aforementioned skills.

Given the nature of these above components, the focus in SVG will be on:

1) Ensuring that all new teachers entering the system have attained the 'Knowledge Deepening' level of competence through their pre-service training;
2) All teachers in SVG have attained the 'Technology Literacy' level of competence by the end of 2014;
3) At least 25% of all teachers in SVG have attained the 'Knowledge Deepening' level of competence by the end of 2014.

Technology Coordinators

The term 'Technology coordinator' refers to the individual staff member at a school who is assigned overall responsibility for developing and overseeing/driving implementation of a school's ICT Integration Plan. Appointments of Technology Coordinators have already been made at all schools in SVG and a first round of professional development has been implemented.

One of the Technology Coordinator's roles is to act as the school point of contact on all ICT-related matters. Another is to promote creative use of computers in the development of educationally meaningful projects. There are also administrative requirements, where the

Technology Coordinator needs to work closely with the ICT Integration Support Team to, for example:

- Develop a School ICT Integration Plan.
- Develop and ensure compliance with a code of conduct for computer usage within the school.
- Support teachers and lecturers in articulating their professional development needs in relation to ICT skills.
- Facilitate development and implementation of individual professional development pathways for school staff.
- Agree and oversee timetabling and booking systems for the ICT resources available in the school.
- Act as a point of contact for reporting maintenance and technical support requirements.
- Identify areas that can be enhanced by the use of ICT and support the implementation of suitable systems for, by way of example:
  - Reporting – academic achievement and personal development comments;
  - Timetabling;
  - Finance;
  - Communication; and
  - Human Resource systems.

It should be noted that the list above provides an expansion on the current job description of Technology Coordinators in SVG. As such, Technology Coordinators will have specific professional development requirements. These may overlap with the needs of school principals and with the professional development requirements of teaching staff, but there is a sufficiently common core of requirements that warrant defining Technology Coordinators as a unique group. Resources, communities of practice, training, and professional development opportunities will be essential to support the people who are appointed to this role. They require support in technical, pedagogical and leadership areas.

Students

The extent of ICT deployment in SVG suggests that formal technical support will be insufficient to ensure ongoing maintenance of ICT equipment. In addition, there are several emerging examples internationally (for example, in the United States of America, Macedonia, and Indonesia) that students can play an important role in supporting ICT maintenance and repair within schools. Such strategies have also been demonstrated to have significant positive educational and social outcomes for participating students, and are already being introduced in SVG schools. Consequently, the MoE will continue to explore development of Student Support Technician Clubs (SSTCs) at schools to provide technical support. This process can usefully be guided by a Computer Lab Sustainability Took Kit developed by AED, Cisco, and Qualcomm.[3] The process will aim to develop technical and leadership skills in selected students to support technology teachers to maintain computers, troubleshoot problems, and support classroom teachers to integrate ICT for teaching and learning.

[3] See http://aed.org/Publications/computer-system-sustainability-toolkit.cfm.

Education Officers

The leadership role of Ministry of Education personnel at the national and district levels in changing their own practice and supporting and monitoring schools in their uptake of ICT is pivotal to the success of SVG's plans to roll out ICT in education. The areas in which MoE personnel require support include: leadership and vision; learning and teaching; productivity and professional practice; support, management, and operations; assessment and evaluation; and social, legal and ethical issues. From this perspective, the MoE has already begun developing the capacity of Education Officers to provide this support to teachers in schools, and to manage the implementation of in-service teacher professional development activities. Consequently, it is essential to ensure that the capacity of these Officers in ICT Integration is systematically developed, while their job descriptions are simultaneously streamlined to provide them the necessary time to implement this support function effectively.

Summary

In summary, therefore, the immediate focus for professional development will be to develop a multi-tiered support structure for teachers, which provides the necessary support and monitoring to ensure effective use of the extensive ICT infrastructure that has been deployed in SVG. This support structure will comprise:

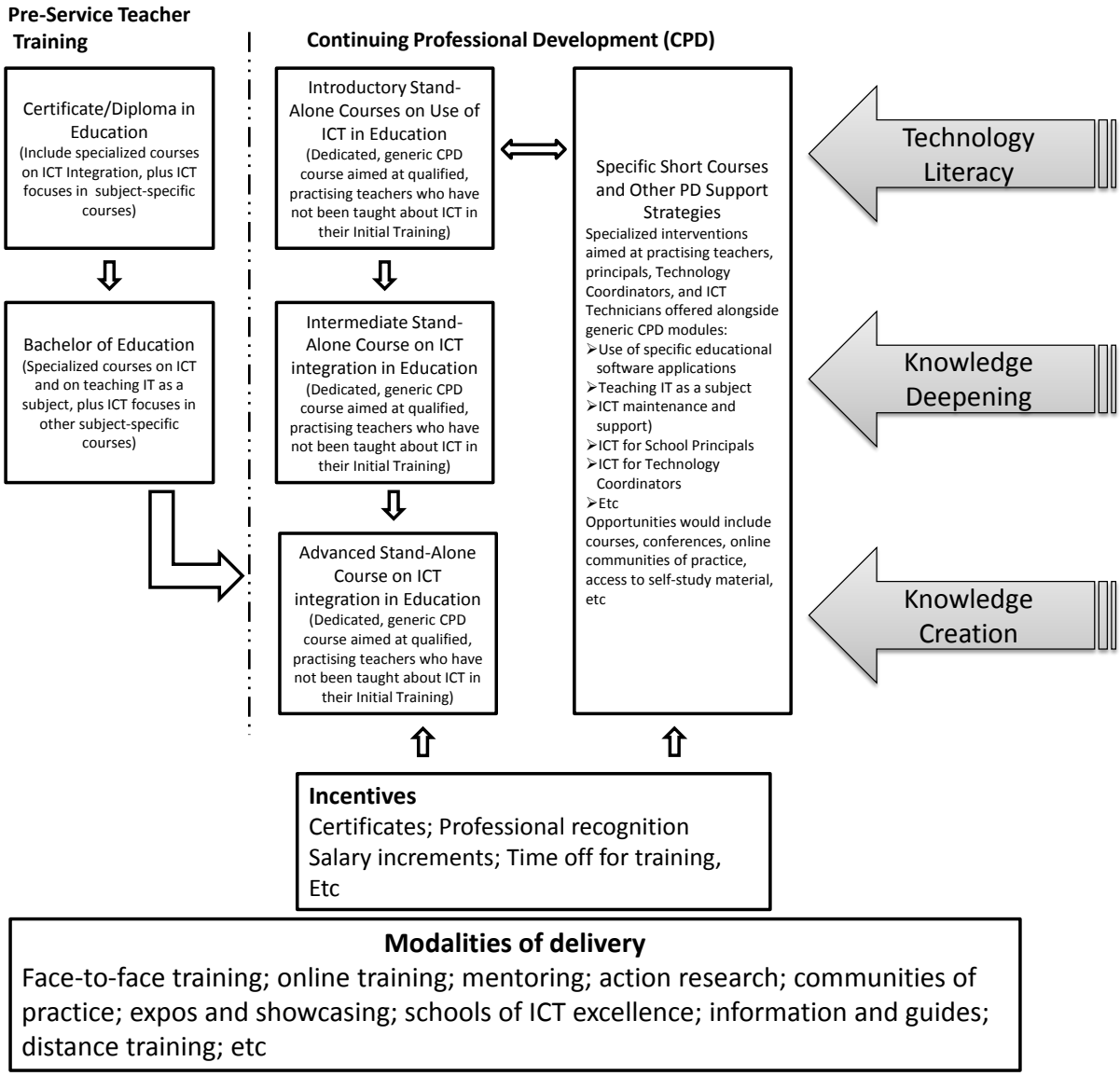
6) A supportive school environment, with a comprehensive ICT Integration Plan being developed by the ICT Integration Support Team in consultation with all key players, which serves to ensure that school administrators (and especially principals) are supportive of teachers' efforts to use ICT effectively in their classrooms and that school targets in this regard are formally monitored.
7) A first line of support for teachers being provided within the school through Technology Coordinators, and SSTCs. Technology Coordinators particularly will be developed to provide ongoing pedagogical support to all teachers within schools regarding effective ICT Integration.
8) Access to three levels of professional development support for teachers, which seek to move them systematically from Basic ICT Readiness to Technology Literacy to Knowledge Deepening levels of competence (and, for some, beyond to Knowledge Creation). This professional development will be made accessible on an ongoing basis from the beginning of 2012, using Education Officers as facilitators.
9) A teacher supply system (through the pre-service teacher education programme) which ensures that all new teachers entering the system have already attained the Knowledge Deepening level of competence, so that the requirement for ongoing professional development declines systematically over four years.
10) Access to online communities of practice, through which educators in SVG can share knowledge, resources, and experiences, as well as seeking support from their peers.

Much of this support structure is already in place within SVG, and its establishment will be accelerated through implementation of this Strategy.

3.2.2 SVG ICT Professional Development Framework for Educators

The SVG ICT Professional Development Framework for Educators can be presented diagrammatically as follows:

Figure 2 SVG ICT Professional Development Framework for Teachers



The SVG ICT Professional Development Framework for Educators will incorporate various professional development courses as outlined in Table 1 below.

Table 2 Professional Development Courses

Course and Launch Date	Target Audience	Provider	Methodology, Duration, Frequency	Outcomes
Commonwealth Certificate for Teacher ICT Integration	Education Officers Teacher's College Lecturers Selected Technology Coordinators	SchoolNet South Africa/ COL	320 Notional Learning hours over 18 months Predominantly online, with very limited face-to-face interaction New enrolments annually	Successful attainment of competences at Knowledge Deepening Level of UNESCO ICT CFT See curriculum of CCTI for detailed learning outcomes
Basic ICT Readiness Assessments commence in Jan 2011 Course launches in March 2012	In-service teachers with no prior experience of using ICT (basic assessment to be completed to determine requirement to complete this course)	Curriculum Division (Education Officers to facilitate, with support of staff from Teacher's College)	24 notional learning hours in a three-day workshop Face-to-face workshop in computer laboratory Three times annually until all teachers have completed course	Basic ICT skills developed in order to enable progression onto Level One Professional Development Participants assumed to enrol immediately in 'Technology Literacy for Teachers' to embed skills gained
Technology Literacy for Teachers Feb 2012	In-service teachers at Basic ICT Readiness level	Curriculum Division (Education Officers to facilitate, with support of staff from Teacher's College)	120 notional learning hours over 5 months Blended learning – limited face-to-face workshops, combined with online learning, in-class assessment activities, and school support visits Twice annually until all teachers have completed course	Successful attainment of competences at Technology Literacy Level of UNESCO ICT CFT Ideally, successful teachers will move onto to complete 'Knowledge Deepening for Teachers' the year after they complete this course
Knowledge Deepening for Teachers	In-service teachers at Technology Literacy level	Curriculum Division (Education Officers to facilitate, with support of staff from	120 notional learning hours over 6 months Blended learning – limited face-to-face	Successful attainment of competences at Knowledge Deepening Level of UNESCO ICT CFT

Course and Launch Date	Target Audience	Provider	Methodology, Duration, Frequency	Outcomes
Feb 2013		Teacher's College)	workshops, combined with online learning, in-class assessment activities, and school support visits Twice annually	
ICT Integration for Administrators April, 2012	School Administrators	Curriculum Division (Education Officers to facilitate, with support of staff from Teacher's College)	60 notional learning hours over 6 months Blended learning – limited face-to-face workshops, combined with online learning, in-class assessment activities, and school support visits Once-off implementation, with multiple cohorts, to ensure that all schools develop ICT Integration Plans	Competences defined for principals in ISTE[4] All participating schools will be expected to produce a functional ICT Integration Plan as part of their overall School Plan as a core outcome of this course
ICT Integration for Technology Coordinators September, 2012	Technology Coordinators (should be at least at a level of Technology Literacy before commencing this course)	Curriculum Division (Education Officers to facilitate, with support of staff from Teacher's College)	60 notional learning hours over two months Online learning Twice annually	Customized course to meet specific requirements of Technology Coordinators in SVG
Mentoring Programme for Education Officers Jan 2012	Education Officers Lecturing Staff from SVG Community College	External Consultant/s	Ongoing support and engagement, including two face-to-face visits, during 2012	Customized programme to meet specific requirements of Education Officers and Lecturing Staff to manage implementation of professional development activities
SSTC course	Students	Technology Coordinators	24 notional hours of learning over three days, with follow-up online support and	See SSTC Toolkit

[4] See http://www.iste.org/standards/nets-for-administrators.aspx.

Course and Launch Date	Target Audience	Provider	Methodology, Duration, Frequency	Outcomes
April, 2012			support from ICT Technicians On demand at schools	

3.3 Targets for the Professional Development Implementation Plan

Notional targets for each in-service professional development course are presented in table two. It is important to note that the key constraint in enrolments is the number of mentors available to facilitate courses (numbers below are based on an assumption that each group of 20 students will require one mentor/facilitator).

Table 3 Notional In-Service Course Enrolments

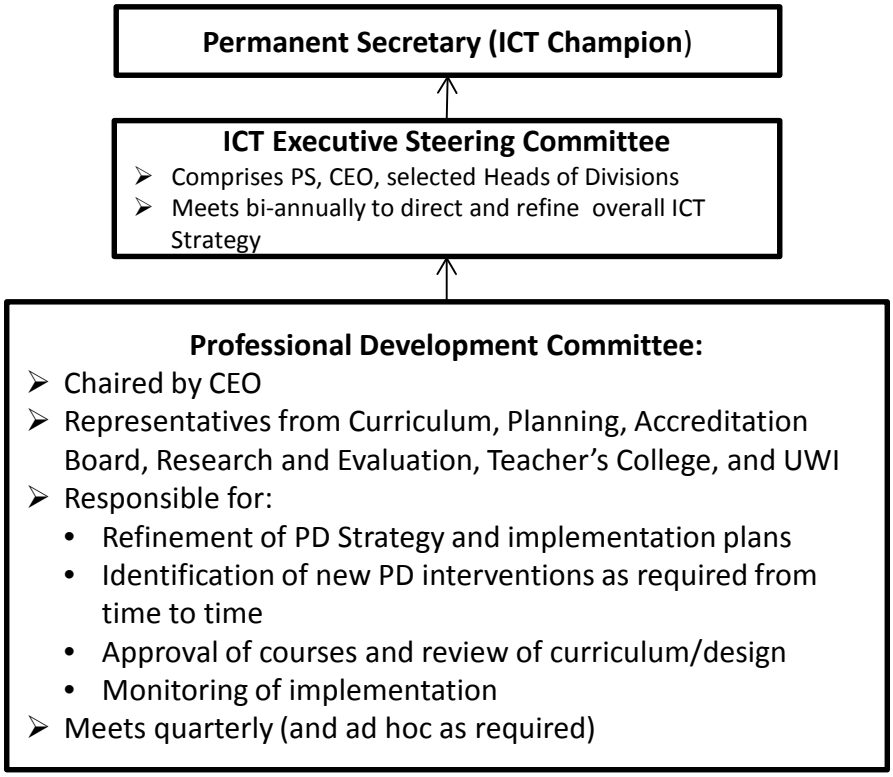
In-Service Course	2012			2013			2014			Total
CCTI	50			50			50			150
Basic ICT Readiness Assessment	25	25	25	25	25	25	N/A	N/A	N.A	150
Basic ICT Readiness	N/A	25	25	25	25	25	25	N/A	N.A	150
Technology Literacy for Teachers	150	150		150	150		150	150		900
Knowledge Deepening for Teachers	N/A			75	75		75	75		300
ICT Integration for Administrators	180			180			180			520
ICT Integration for Technology Coordinators	90			90			90			90
SSTC course	180			360			720			1,260

3.4 A Management Structure for the Implementation Plan

A simple management structure is proposed for the Professional Development Strategy, which envisages the Ministry of Education assuming overall oversight responsibility for Implementation and is in line with structures already in place in the country and in line with the existing ICT in education policy.

The management structure can be represented diagrammatically as follows:

Figure 3 ICT Professional Development Management Structure



As can be seen, the above structure requires input from various players, whose roles are summarized in the table below:

Table 4 Roles of Key Agencies

Agency	Roles
Curriculum Division	• Coordinate development and refinement of PD Strategy/plan, as directed by Professional Development Committee • Facilitate professional development courses as identified in Framework • Manage enrolments onto courses • Design, establish, maintain monitoring system to ensure progress towards targets • Lead course design process
Planning/ Research and Evaluation Division	• Provide inputs into PD Strategy • Conduct annual evaluation exercises to determine effectiveness of implementation of PD Strategy
Teacher's College	• Ensure that pre-service programme incorporates courses to enable trainee teachers to attain at least a 'Knowledge Deepening' level before graduation • Possible development and provision of a menu of in-service courses (aligned with requirements of PD strategy) as agreed with Professional Development sub-committee • Provide inputs into course design activities
Universities (UTT, UWI, USC)	• Possible development and provision of a menu of in-service courses (aligned with requirements of PD strategy) as agreed with Professional Development sub-committee

Agency	Roles
	• Possible long-term role in delivery of CCTI • Provide inputs into course design activities
COL/COMSEC	• Key inter-governmental organizations, with strong interest in, and history of, supporting education in SVG • Able to offer technical assistance and support to the Strategy • Have an interest in replicating similar approaches in other countries if they are successful • Able to offer access to educational resources and materials that may be useful in the Plan, particularly – but not only – through the CCTI
Microsoft	• Key technology company, with strong interest in, and history of, supporting education in SVG • Currently a partner of COL and ComSec • Able to offer technical assistance and support to the Strategy • Able to offer access to educational resources and materials that may be useful in the Implementation Plan • Has an interest in replicating similar Strategies in other countries if it is successful

3.5 Logical Framework

The Strategy design is summarized in the logical framework presented below:

	Indicators	*Sources of verification*	*Risks/Assumptions*
General Objective			
Ensure that all education officers, school administrators, technology coordinators, and teachers are competent to harness ICT effectively to support high quality teaching and learning in SVG schools			
Strategy Objectives			
• Implement a structured, coherent ICT Competency Framework for Educators in SVG, providing clear learning pathways through to the Knowledge Creation level of the UNESCO ICT CFT • Design and operationalize all necessary courses and modules, with underpinning high quality educational materials, to provide necessary learning pathways to SVG teachers and other key personnel • Deliver initial and ongoing professional development opportunities to drive ICT integration in SVG			

	Indicators	***Sources of verification***	***Risks/Assumptions***
Results			
1) Design of Professional Development courses completed	• Mentor Support Programme for Education Officers design completed by January, 2012 • Basic ICT Readiness Assessment ready for implementation in January, 2012 • Basic ICT readiness (ICT Skills for Teachers course) course and materials completed and ready for implementation by end January, 2012 • Technology Literacy course and materials completed and ready for implementation by February, 2012 • ICT Integration for Principals course and materials completed and ready for implementation by April, 2012 • ICT Integration for Technology Coordinators course and materials completed and ready for implementation by September, 2012 • SSTC course ready for use of Technology Coordinators by April, 2012 • Teacher's College pre-service programme's ICT Seminar Series aligned to UNESCO ICT CFT Technology Literacy Level by April, 2012 • Teacher's College pre-service programme's ICT Seminar Series introduced in second year programme and aligned to UNESCO ICT CFT Knowledge Deepening Level by September, 2012	• Course curricula • Course materials • Online OER repository	• Existing courses from around the world can be identified and adapted for local delivery in SVG • Adaptation can incorporate focus on Open Source Software loaded on netbooks • All pre-service teachers in Teacher's College will receive netbooks • Commitment is secured from all relevant parties to share curricula and materials online • Any emerging copyright issues can be resolved to enable release of materials under appropriate Creative Commons licences • Education Officer job descriptions will be reviewed and streamlined to create space to discharge ICT Integration support responsibilities effectively • Additional Education Officers will be appointed over time (by filling existing posts) to absorb growing workload

	Indicators	***Sources of verification***	***Risks/Assumptions***
2) Implementation of professional development activities	• In-service PD targets achieved annually (see table 2 above)	• Curriculum documents • Course materials • Course delivery schedules • Monitoring reports • Certificates of completion	• Mentors required for implementation of ICT Professional Development Strategy successfully complete CCTI and are available to function as mentors • Financial resources are secured to support implementation of new courses • Staff are released to complete courses • Staff participation in courses is sufficiently sustained to ensure successful completion
3) Monitoring system established	• Design of monitoring system and accompanying capacity audits forms completed by April, 2012 • Monitoring system kept up to date in real time and made accessible to key players online as professional development activities are completed • External evaluation of progress with implementation of ICT Professional Development Strategy for Educators in SVG completed biennially, with first report completed in June, 2013 • Biennial evaluation activities completed	• Capacity audit instruments and report • Monitoring system design • Monitoring system reports • Evaluation reports	• Difficulties in accessing schools do not inhibit completion of baseline survey by identified deadline • Monitoring system can be hosted and accessed online • All participating organizations commit to logging activities within monitoring system to enable real-time monitoring

3.6 Activity Schedule

Drawing from the above Logical Framework, the following high-level schedule of activities for the defined Results has been prepared. Deadlines assume a start date of 1st January, 2012:

Activity	Deadline
1. Design of Professional Development courses completed	
For each course:	
1.1. Appoint consultant to support course development	Variable deadlines for each course
1.2. Complete scan of existing courses and materials that can be harnessed to create course	
1.3. Complete development of initial version of course, through adaptation of existing course materials in consultation with relevant stakeholders	
1.4. Pilot draft course and gather feedback from participants	
1.5. Review and improve course based on feedback from pilot	
1.6. Complete final packaging for course	
1.7. Ensure copyrights are cleared to enable released of course materials as OER	
1.8. Release course materials online via ComSec/COL repository	
2. Implementation of professional development activities	
2.1. Design detailed mentoring support programme for Education Officers, ensuring that target dates for launching new courses and target enrolments are adjusted as appropriate to take account of capacity constraints	31st January, 2012
2.2. Identify 25 new participants to enrol in CCTI to develop local capacity	Every six months, commencing January, 2012
2.3. Ensure remaining EO posts are filled to create additional capacity required for implementation of PD plan	30 June, 2012
2.4. Implement rolling programme of professional development, based on design of mentor support programme to achieve targets for professional development across all courses	Ongoing
3. Monitoring system established	
3.1. Appoint local research agency/consultant to complete baseline study of ICT competence of teachers and other relevant personnel	1st June, 2012
3.2. Prepare/adjust survey instruments	15th June, 2012
3.3. Pilot and refine survey instruments to ensure they work successfully	30th June, 2012
3.4. Administer survey	31st August, 2012
3.5. Compile results of survey and complete necessary analysis to identify key skills gaps	30th September, 2012
3.6. Use baseline survey to design appropriate monitoring system within MoE, in consultation with all key	31st October, 2012
3.7. Build monitoring system based on design	30th November, 2012
3.8. Ongoing input of data into monitoring system by key parties to ensure real-time monitoring of progress	Ongoing
3.9. Quarterly reports circulated on status of implementation	Ongoing

Activity	Deadline
3.10. Identify evaluation agency to complete biennial external evaluation	1st January, 2013
3.11. Evaluation agency to prepare detailed implementation plan for evaluation process for approval by MoE	31st January, 2013
3.12. Evaluation agency to implement plan and prepare annual evaluation reports for submission by 30th June every two years	Ongoing

3.7 Monitoring and Evaluation Strategy

As can be seen from the above logical framework and activity schedule, provision has been made for ongoing monitoring and evaluation of the ICT Professional Development Strategy for Educators in SVG. It is envisaged that this will comprise three key elements:

4) Completion of a detailed baseline survey to determine the level of ICT competence of teachers in SVG during 2012;
5) Design, development, and maintenance of a Monitoring System designed to track delivery of capacity building in response to the gaps identified in the baseline survey, updated in real time by the agencies delivering professional development, so that progress in delivery can be monitored on an ongoing basis;
6) Commissioning in the second year of implementation of a comprehensive external evaluation study, with biennial formative evaluation reports designed to feed into and improvement implementation of the ICT Professional Development Strategy for Educators in SVG.