Monitoring and Evaluation Plan for the ICT Professional Development Strategy for Teachers in Guyana

1   Background and Introduction

In 2010, the Information and Communication Technology (ICT) Professional Development Strategy for teachers in Guyana was developed and approved. This strategy is in line with the Guyana Ministry of Education's ICT Operational Plan, and more broadly, supports the Government of Guyana's focus on the role of ICT in meeting national developmental challenges and strengthening of the economy. A key element of the ICT Professional Development Strategy is that there needs to be ongoing, longitudinal monitoring and evaluation of the process, progress, and success of implementation. This document presents the proposed monitoring and evaluation plan. The ICT Professional Development Strategy logical framework is included in Appendix One as it summarizes the strategy design and has been used as a basis for developing the monitoring and evaluation strategy.

The basic monitoring and evaluation procedures and structures can be used as long as required to inform the successful role out of the strategy. The research methodology proposed has sought to be both comprehensive and relatively simple to implement and manage. It would also allow for dedicated focus on specific issues in different years. The aim is to propose a monitoring and evaluation system that supports the work of those implementing the ICT Professional Development Strategy without creating too complex a layer of additional management and administration. For example, the collection of data from schools will be aligned with the collection of data for the Annual Schools Survey in order to simplify data collection processes. Further details are provided below.

2   Monitoring and Evaluation Defined

The concepts of monitoring and evaluation are distinct, but closely related and the line between each is blurred. It is thus important to define carefully how each concept has been used in the context of this plan.

- **Monitoring** is regarded as a type of formative evaluation and continuous observation of implementation progress. Typically, monitoring makes use of routine management information to establish the extent to which targets, outcomes and/or goals are being achieved, and to identify changes occurring. Monitoring usually focuses on the ongoing tracking of inputs, processes and outputs of a strategy or intervention over time.
- **Evaluation** involves the interpretation of monitoring data to discern, explain and assess changes, trends, patterns and causalities. Evaluation research seeks to understand the impact that a strategy or intervention is having and is focused on the implications of what monitoring data shows. In sum, evaluation research takes a deeper and more complex look at monitoring data, and often includes the collection of additional research data to inform evaluative conclusions about impact. Often, evaluation research will raise further questions that need to be considered in later evaluation studies.

It is common for the monitoring function to be done internally (i.e. by those involved in the day to day implementation and management of a strategy or interventions) and evaluation to be conducted by a researcher or research team who are not part of the implementation process (i.e. external researcher(s) or organization).

This monitoring and evaluation plan focuses somewhat greater attention on the monitoring aspect based on the assumption that monitoring will begin immediately and will be an integral part of implementation of the ICT Professional Development Strategy. With respect to the evaluation component, this document presents a broad overview of the key evaluation focus areas and objectives and suggests an overall research design. However, it is assumed that the final evaluation plan, including sampling strategy, research instruments, activities and timeframes would be prepared by the external researchers appointed to do the evaluation. This is important since the evaluation research is an external study.

3   Defining Monitoring and Evaluation Objectives

As noted in the introductory section above, the monitoring and evaluation plan is closely aligned to the ICT Professional Development Strategy. Thus, the starting point in formulating monitoring and evaluation objectives has been the long-term outcomes of the overall strategy. Key aspects of the long-term outcomes that are particularly relevant to the monitoring and evaluation plan have been highlighted in bold.

The long-term outcomes of the ICT Professional Development Strategy are to ensure that all Ministry of Education officials, teacher development management and staff, school principals, administrators, and teachers **are competent to harness ICT effectively to support high quality teaching and learning in Guyanese schools**, with:
- All able to *integrate* **the use of basic ICT tools** into the standard school curriculum, pedagogy, and classroom structures, knowing how, where, and when (as well as when not) to use technology for **classroom activities** and presentations, for **management tasks**, and to acquire additional subject matter and pedagogical knowledge in support of their **own professional development**;
- Most able to **use more sophisticated methodologies and technologies** with changes in the curriculum that emphasize **depth of understanding** and **application** of school knowledge to real world problems and pedagogy in which the teacher serves as a guide and manager of the learning environment and **students are engaged in extended, collaborative project-based learning activities** that can go beyond the classroom and may involve local or global collaborations; and
- A critical mass having acquired **sophisticated professional skills** with the **pervasive use** of technology to support students who are creating knowledge products and are engaged in planning and managing their own learning goals and activities and to both model the learning process for students and serve as **model learners** through their own ongoing professional development—individually and collaboratively, within schools that are, themselves, becoming **continuously improving, learning organizations.**

From a monitoring and evaluation point of view, we can break these long term outcomes, and the more specific objectives and results listed in the logical framework, into three main areas of research focus:
1) [Changing] patterns of ICT use and integration into learning environments;
2) Training (capacity building) development (i.e. development of new and tailoring of existing courses), roll out, response to training, and effectiveness of training in changing behaviour in a learning environment; and

3) Explanation of impacts achieved and not achieved.

The specific objectives of the monitoring and evaluation framework are thus to:
1) Track changes in ICT use over time;
2) Track participation in ICT courses/training;
3) Assess the effectiveness of the ICT courses/training offered;
4) Assess the extent to which each of the seven results specified in the Strategy have been achieved;
5) Understand the conditions in which anticipated results have and/or have not been achieved; and
6) Identify (as early as possible throughout the implementation process) changes and improvements needed to ensure that the strategy achieves its outcomes.

As noted above, although closely related, monitoring and evaluation are different activities with specific purposes. As such, some of these objectives will be achieved via the internal monitoring process, some through external evaluation and some through monitoring and evaluation combined. Table 1 shows which of the specific monitoring and evaluation objectives will be assessed through monitoring, evaluation, or both functions.

Table 1   Mapping of monitoring and evaluation objectives to research function

Monitoring and Evaluation Objectives	Monitoring function (Internal)	Evaluation function (External)
1. Track changes in ICT use over time	X	
2. Track participation in ICT courses/training	X	
3. Assess the effectiveness of the ICT courses/training offered	X	X
4. Assess the extent to which each of the seven results have been achieved		X
5. Understand the conditions in which anticipated results have been achieved, and have not been achieved		X
6. Identify changes and improvements needed to ensure that the strategy achieves its outcomes.		X

4   Monitoring design

Table 1 showed that there are three main areas of focus for ongoing internal monitoring. In this section, the areas of focus are addressed in turn, with the latter two being presented together due to overlaps in the data collection processes. Thus, a comprehensive monitoring database and methodology is envisaged in which the monitoring data across each of these areas can be both separately and jointly analysed.

4.1   Tracking changes in ICT use over time (Monitoring focus one)

The use of ICT – and the effective integration of ICT in educational practices – is one of the key outcomes that the ICT Professional Development Strategy seeks to achieve. As such, tracking changing patterns of use is a critical part of the monitoring research. A baseline survey on the use of ICT in education has already been developed and data collection will take place during the Annual School Survey that will be administered in October 2011. Draft instruments targeting teachers, teacher educators, and staff in the Ministry of Education have been developed. These instruments

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provide the basis for tracking ICT use over time. All 600 schools will be targeted to complete the surveys – baseline in 2011 and then annually in October as part of the Annual School Survey process. The survey targeting teachers is included as Appendix 2.

While it will be possible and necessary to assess change on an item-by-item basis for depth of understanding, it is proposed that a set of indicators for monitoring ICT use be defined. These indicators will provide a summary of progress. In particular, the following indicators of ICT use will be calculated – using the data collected during the ICT in Education surveys annually.

Indicators of teacher ICT use:
Indicator One: Regularity of computer use
Indicator Two: Regularity of email use
Indicator Three: Confidence to use ICTs
Indicator Four: Types of ICT use in the classroom

Indicators of teacher education ICT use:
Indicator One: Regularity of computer use
Indicator Two: Regularity of email use
Indicator Three: Confidence to use ICTs
Indicator Four: Types of ICTs use when teaching student teachers

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Indicators of Ministry of Education staff ICT use:
Indicator One: Regularity of computer use
Indicator Two: Regularity of email use
Indicator Three: Confidence to use ICTs
Indicator Four: Types of activities for which ICTs are used

Annual statistics for each of these indicators will be produced and reported on numerically and graphically in an easy-to-understand format. The ICT use indicators over time will be reported on the Ministry of Education website such that all stakeholders can review progress being made and benchmark their own progress against national averages.

4.2   Tracking participation in ICT courses/training and response of participants (Monitoring focus two and three)

The development of appropriate ICT courses, targeting a variety of different pre- and in-service teacher education needs is a central activity in the ICT Professional Development Strategy. Result 3 of the ICT Professional Development Strategy reads as follows: 'Capacity of all relevant staff at the MoE,[1] UG,[2] CPCE,[3] and NCERD[4] in ICT integration developed.' Part of understanding the extent to which this result is being achieved is to understand who is participating in the courses developed and the extent of reach. In addition, participant feedback on the courses themselves is also an

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[1] Ministry of Education
[2] University of Guyana
[3] Cyril Potter College of Education
[4] National Centre for Education Resource Development

important monitoring function in order to assess whether courses have been appropriately designed, targeted, and taught.

To do this, a simple training participation monitoring system will be developed. All training and/or teacher education providers will be requested to collect the following information during all relevant ICT-related courses:
- Signed register with the following details:
  – Pre-service or in-service teacher or MoE staff member
  – Participant name
  – Current school (for in-service teachers)
  – Gender
  – Age
  – Subject area specialisation (where relevant)
- Course evaluation forms
  – All participants should complete a course evaluation form on the final day of training
  – A standard course evaluation form will be prepared, with the option to add additional course specific questions as needed.

Both the course registers and course evaluation forms will be available in hard copy for completion by the participating teachers, student teachers, or MoE staff. An online version of the course evaluation forms will also be available and, depending on the context of the specific training, either the hard copy or online version can be used. The training provider (UG, CPCE, or NCERD) will be required to capture this information into an online training monitoring system (online evaluation forms will automatically be captured). A simple web interface will be developed to facilitate this process. This approach will allow for real time data collection and ongoing analysis and tracking. The course evaluation forms will be used as one component of the assessment of the effectiveness of the training. The information collected in these forms will be complemented with additional data during the external evaluation (see below). Finally, the data on participation in the ICT capacity building courses will also be sent at regular intervals to the Teacher Services Commission for inclusion as part of the human resource (HR) record of teachers.

4.3   Using Monitoring Data to Influence Practice

The purpose of monitoring is to track performance as part of ongoing management and implementation of the strategy. On the basis of this tracking, decisions can be taken regarding what is working well and where improvements are needed. For monitoring data to be useful, a careful strategy for analysis and reporting is needed in order for monitoring data to inform decision-making and planning processes. In monitoring the ICT Professional Development Strategy, the Monitoring Officer (see section 6), will prepare short monthly monitoring reports. The reports will present data according to each of the indicators of ICT use defined above, as well as on the numbers of participants who have completed training. In addition, a quantitative summary of the training feedback forms will be presented on a course by course basis (including all courses completed during the past month). This will allow for timely feedback on the strengths and weaknesses of the training models being used and, as such, can be used to facilitate ongoing improvement in capacity building efforts.   Monthly reports will be shared with all Ministry of Education staff members who are involved in the implementation of the strategy, as well as with each of the education providers. A composite version of the monthly reports will be prepared every six months for presentation to the Guyana Education Initiative Steering Committee (see section 6).

5   External Evaluation Design

As described above, evaluation is complementary to monitoring, but has a different purpose. Evaluation seeks to interpret the meaning of monitoring data and to add to this additional information needed to make an assessment of the impact (sometimes referred to as the value-added) of an intervention or strategy. Table 1 summarised the focus areas for the evaluation research. In particular, the evaluation research will focus on:

- Assessing the extent to which each of the seven results specified in the ICT Professional Development Strategy have been achieved;
- Understanding the conditions in which anticipated results have been achieved, and have not been achieved; and
- Identifying changes and improvements needed to ensure that the strategy achieves its outcomes.

The logical framework presents details for each of the result statements and the indicators that can be used to assess the achievement thereof. The external evaluator will consider each of the sources of verification listed in order to assess achievement of the results. A review of these sources of verification will be complemented by interviews with key stakeholders including, at least, representatives from the Ministry of Education, NCERD, CPCE, and UG. While this is an important aspect of the evaluation and is essential in understanding the effectiveness of the ICT Professional Development Strategy, perhaps even more important is assessing the impact the strategy is having at the classroom level.
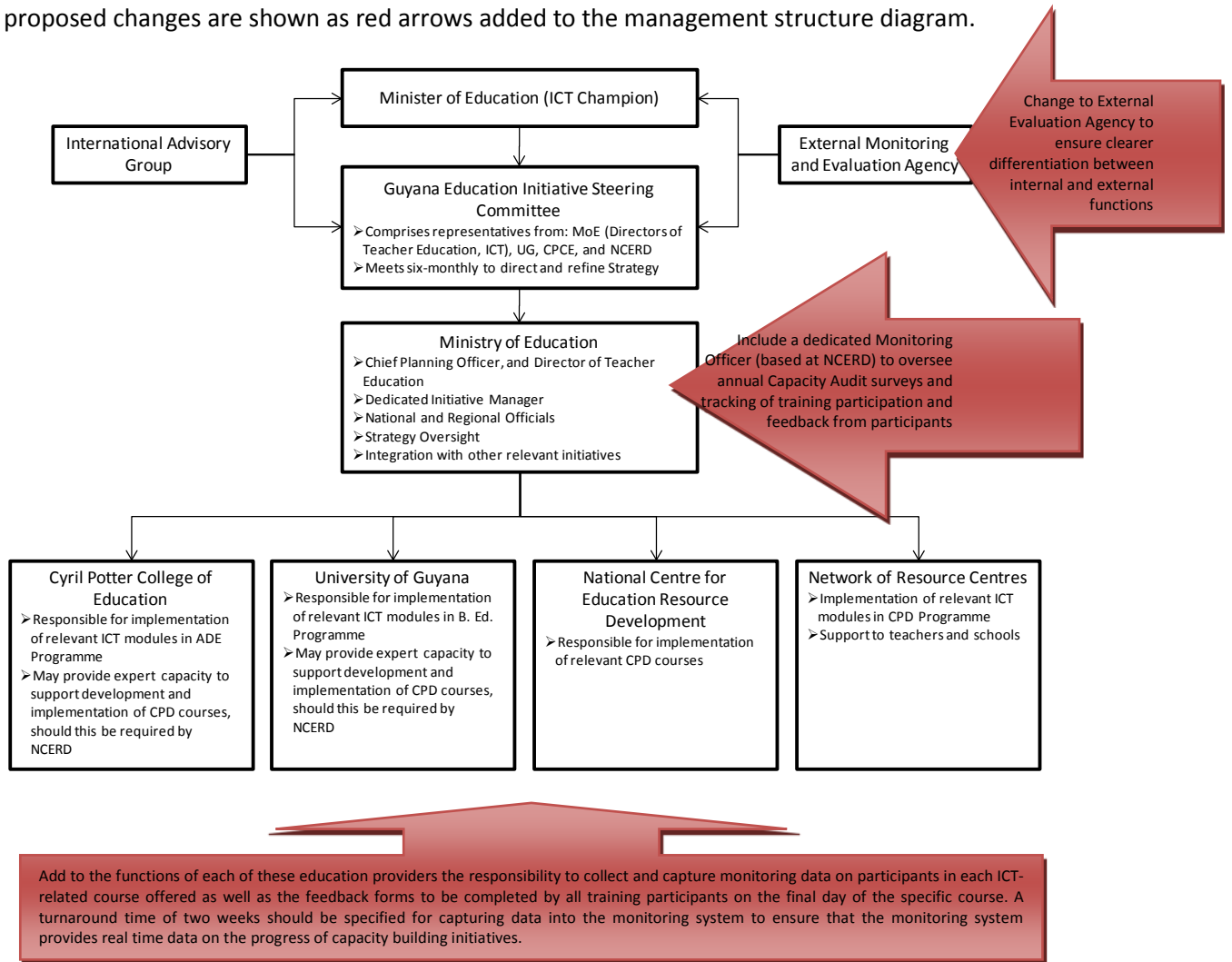
As such, the central element of the evaluation research design is a series of school visits. It is proposed that each annual evaluation study sample a total of 20 schools at which to conduct this research. Each year, a different sample of schools should be selected. The sample should include primary schools, secondary schools, community high schools and general secondary schools and should also include schools from the coastal region as well as hinterland schools. The external evaluators commissioned to conduct the study will formalise the sampling strategy to be used. It is proposed that at least the following research activities be conducted at the school level:

1) Interview with the school principal, focused on the use of ICT in the school and reflections on any changes taking place following teachers' participation in ICT-related training;
2) Interviews with teachers who have participated in ICT-related training to reflect on their experience of the training as well as on their use of ICT to support teaching and learning;
3) Interviews with IT teachers regarding the improvements to the IT curriculum and the perceived impact of these changes;
4) Focus group discussions with school learners who are not taking IT as a subject focused on their use of ICT in the classroom and the types of activities for which ICTs have been used;
5) Focus group discussions with school learners who are taking IT as a subject to reflect on their experience and learning in IT specifically;
6) Review of a sample of learners' work demonstrating use of relevant ICTs; and
7) Lesson observations in which ICTs are integrated.

6   Integrating Monitoring and Evaluation into the Strategy Management Structure

The ICT Professional Development Strategy presents an overall management structure – see page 8 of the Strategy document. In terms of integrating monitoring and evaluation research as proposed above, a few small changes to this structure are proposed in order to specifically accommodate the

monitoring function as an internal responsibility and the evaluation as an external function. The proposed changes are shown as red arrows added to the management structure diagram.

Minister of Education (ICT Champion)

International Advisory Group

External Monitoring and Evaluation Agency

Guyana Education Initiative Steering Committee
- Comprises representatives from: MoE (Directors of Teacher Education, ICT), UG, CPCE, and NCERD
- Meets six-monthly to direct and refine Strategy

Ministry of Education
- Chief Planning Officer, and Director of Teacher Education
- Dedicated Initiative Manager
- National and Regional Officials
- Strategy Oversight
- Integration with other relevant initiatives

Change to External Evaluation Agency to ensure clearer differentiation between internal and external functions

Include a dedicated Monitoring Officer (based at NCERD) to oversee annual Capacity Audit surveys and tracking of training participation and feedback from participants

Cyril Potter College of Education
- Responsible for implementation of relevant ICT modules in ADE Programme
- May provide expert capacity to support development and implementation of CPD courses, should this be required by NCERD

University of Guyana
- Responsible for implementation of relevant ICT modules in B. Ed. Programme
- May provide expert capacity to support development and implementation of CPD courses, should this be required by NCERD

National Centre for Education Resource Development
- Responsible for implementation of relevant CPD courses

Network of Resource Centres
- Implementation of relevant ICT modules in CPD Programme
- Support to teachers and schools

Add to the functions of each of these education providers the responsibility to collect and capture monitoring data on participants in each ICT-related course offered as well as the feedback forms to be completed by all training participants on the final day of the specific course. A turnaround time of two weeks should be specified for capturing data into the monitoring system to ensure that the monitoring system provides real time data on the progress of capacity building initiatives.

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Appendix One: ICT Professional Development Strategy for Teachers in Guyana Logical Framework

	Indicators	Sources of verification	Risks/Assumptions
General Objective			
Ensure that all Ministry of Education officials, teacher development management and staff, school principals, administrators, and teachers are competent to harness ICT effectively to support high quality teaching and learning in Guyanese schools, with: • All able to integrate the use of basic ICT tools into the standard school curriculum, pedagogy, and classroom structures, knowing how, where, and when (as well as when not) to use technology for classroom activities and presentations, for management tasks, and to acquire additional subject matter and pedagogical knowledge in support of their own professional development; • Most able to use more sophisticated methodologies and technologies with changes in the curriculum that emphasize depth of understanding and application of school knowledge to real world problems and pedagogy in which the teacher serves as a guide and manager of the learning environment and students are engaged in extended, collaborative project-based learning activities that can go beyond the classroom and may involve local or global collaborations; and • A critical mass having acquired sophisticated professional skills with the pervasive use of technology to support students who are creating knowledge products and are engaged in planning and managing their own learning goals and activities and to both model the learning process for students and serve as model learners through their own ongoing professional development—individually and collaboratively, within schools that are, themselves, becoming continuously improving, learning organizations.		
Strategy Objectives			
• Establish a structured, coherent ICT Competency Framework for Teachers in Guyana, 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 Guyanese teachers and other key personnel • Deliver initial and ongoing professional development opportunities to drive ICT integration in Guyana		
Results			
1) ICT in Education policies and plans reviewed.	• Review of ICT in education policies and plans completed by October, 2010 • Results of review are integrated into relevant policies and plans by December, 2010 • Full implementation plans for all aspects of ICT in education rollout completed by December, 2010	• Workshop reports • Review report • Revised policies and plans • Implementation plans	• Political commitment is secured from all relevant parties to complete review • Commitment is secured from all relevant parties to adjust current targets where these are unrealistic • Funds can be secured in the short term to support the review
2) An ICT Professional Development Framework for Teachers in Guyana.	• An ICT Professional Development Framework for Teachers in Guyana and accompanying implementation guidelines is developed and accepted by all key players in the country by December, 2010 • Where they include some focus on ICT, all new courses and programmes aimed at teachers are aligned to ICT Professional Development Framework for Teachers in Guyana and this is explicitly described in the curriculum for these courses and programmes.	• Document describing ICT Professional Development Framework for Teachers in Guyana • Implementation guidelines document • Course/programme curricula	• Commitment is secured from all relevant parties to participate in design of ICT Professional Development Framework for Teachers in Guyana and adhere to the Framework once complete • Funds can be secured in the short term to support development of the Framework

	Indicators	Sources of verification	Risks/Assumptions
3) Capacity of all relevant staff at the MoE, UG, CPCE, and NCERD in ICT integration developed.	• Baseline of current ICT integration competence of relevant staff completed by December, 2010 • Relevant courses and other activities identified for staff to complete to develop their competence in ICT Integration by December, 2010 • All staff complete capacity development courses during 2011 to develop relevant capacities	• Baseline report • Implementation plan for capacity development process • Attendance/participation records of relevant courses and other activities • Certificates of completion of courses	• Existing courses from around the world can be identified and adapted for local delivery in Guyana • Additional staff required for implementation of ICT Professional Development Strategy for Teachers in Guyana are recruited at MoE, UG, CPCE, and NCERD • Staff are released to complete courses • Staff participation in courses is sufficiently sustained to ensure successful completion
4) Completed review and improvement of IT curriculum for secondary students.	• Review of IT Subject Curriculum for Secondary Students completed and new curriculum ready for first delivery in 2012 • Revised IT curriculum subject documents circulated to all teachers teaching IT as a subject by end of 2011	• Review report • Curriculum subject documents	• No identified risks to complete this result
5) Development of all ICT Integration courses and associated materials.	• Design of stand-alone CPD courses on Success Maker completed by December, 2010 • ICT module for Principals Course packaged as a stand-alone module and ready for delivery to principals by mid 2011 • Design of ICT components (and all accompanying materials) of ADE and B.Ed. programmes completed and ready for launch in January 2012 • Design of ICT module (and all accompanying materials) for NCERD Course for Principals completed and ready for integration into the Course by end 2011 • ICT modules of ADE programme re-packaged as stand-alone ICT CPD courses and ready for launch in January, 2012 • ICT modules of B. Ed. programme re-packaged as stand-alone ICT CPD course and ready for launch in mid 2012 • Modules on Teaching IT as a Subject from ADE programme re-packaged as stand-alone ICT CPD course and ready for launch in 2013 • Design of CPD course (and all accompanying materials) for School ICT Coordinators completed and ready for launch in 2014	• Curriculum documents • Course materials • Course delivery schedules	• ICT Professional Development Framework for Teachers in Guyana is completed according to schedule • Guyana-World Bank Project on Improving Teacher Education is finalized and approved for implementation as per current expectations • UG, CPCE, and NCERD are all committed to delivery of ICT Professional Development Strategy for Teachers in Guyana • Additional staff are recruited at UG, CPCE, and NCERD to support design and delivery of new courses • Financial resources are secured to support implementation of new courses

		Indicators	Sources of verification	Risks/Assumptions
6)	Connected Classrooms portal repository of all curricula and content for above courses.	• Repository for curricula and content of courses within ICT Professional Development Framework for Teachers in Guyana is established within Connected Classrooms portal by December, 2010 • Course materials are uploaded into repository, with appropriate Creative Commons licences embedded, as they are finalized	• Connected Classrooms portal • Dedicated repository space on portal • Online links to materials	• 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 • Technical skills exist within Connected Classrooms portal project to develop and launch repository
7)	Monitoring system established.	• Baseline of current ICT competence levels of all teachers and other relevant personnel in Guyana completed by June, 2011 • Design of monitoring system completed by June, 2011, aligned with design of baseline survey and requirements of ICT Professional Development Framework for Teachers • 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 Teachers in Guyana completed annually, with first report completed in November, 2011	• Baseline survey 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