CES/SEM.52/WP.1*
29 September 2003

ENGLISH ONLY

**STATISTICAL COMMISSION and UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE (UNECE)
CONFERENCE OF EUROPEAN STATISTICIANS**

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

INTERNATIONAL TELECOMMUNICATION UNION (ITU)

UNESCO INSTITUTE FOR STATISTICS (UIS)

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD)

STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES (Eurostat)

**Joint UNECE/UNCTAD/UNESCO/ITU/OECD/Eurostat Statistical Workshop:
Monitoring the Information Society: Data, Measurement and Methods
(Geneva, 8-9 December 2003)**

Event related to the World Summit on the Information Society

PERFORMANCE INDICATORS ON ICT FOR EDUCATION MATRIX (UNDER JFIT-FUNDED UNESCO PROJECT)

*Addendum to the Keynote paper CES/SEM.52/6

Ms. Carmelita Villanueva, UNESCO Information Programmes and Services
and ICT for Education Team Member

PERFORMANCE INDICATORS ON ICT FOR EDUCATION MATRIX (UNDER JFIT-FUNDED UNESCO PROJECT)

Indicator Component 1: ICT-Based Policy and Strategy	
1.National/sub-national policy for ICT in education (formal and non-formal)	**Definition** A principle or course of action mandated by the national/sub-national government which provides for the mandate, goals, objectives, standards, scope, strategies and activities, organizational structure and plan, budgetary provision, and an accompanying master plan developed and implemented by the Ministry regarding ICT use in education.
	Purpose To determine presence or absence of commitment and support of policy makers and educational authorities to the systematic integration of ICT in educational systems. Having a policy also provides guidance to programme/project implementation Note: However, a lack of formal ICT policy could also mean that the ICT has become very much integrated into the education system that there is no longer a need for ICT policy as a separate component. However, this condition may only be applicable for those countries in the advanced stage
2. Master Plan with a time frame	**Definition** A blueprint which transforms the policy into action as scheduled including who, what, where, when, how to achieve objectives.
	Purpose To determine presence or absence of specific actions as provided in the master plan in support of ICT policy in education at national and sub-national/school levels. A master plan can show how actual commitment is translated into action
3. Budget plan and appropriations	**Definition** Budget allocations as included in the national and sub-national or local budgets. It also looks into other sources of funds apart from government funding.
	Purpose To determine if support for national/sub-national policy on ICT is manifested though budgetary allocations provided to support implementation of planned activities. Budget may not only come from the national or local government but could also come from various government and private sectors to fund specific activities like teacher training, or testing in schools

4. Proportion of budget on ICT for education vis-à-vis national budget for education *in US Dollars* as well as ICT items/activities on which the money is spent on	**Definition** Total budget of ICT for education over the national budget on education and how this budget is spent/being spent
	Purpose Bigger proportion or amount would show that ICT in education is a priority and also shows what priority activities on ICT money is being spent on. If the funds are not being spent on priority activities to achieve the master plan, then planners/managers can re-direct their activities and revise budget allocations as needed.
5. Organizational structure responsible for implementing the master plan	**Definition** This refers to organizational structure with item positions, job descriptions, and salary scale either as a department, unit, or sector in the ministry both at the national or local levels (school level) with the primary function of implementing national or sub-national policy on ICT for education based on the master plan. This structure could either be permanent structure, a sub-contracted agency, or a committee depending on the organizational set-up based on decisions of the ministry at the central and local levels
	Purpose The presence or absence of an organizational structure determines whether the activities as detailed in the master plan are being implemented as a regular activity of the ministry through a dedicated team or unit. It will also show whether the programme is an integral permanent part of the Ministry or just a temporary unit run by a short-term project. It could also reveal whether or not there is distributed leadership where responsibilities are shared and integrated into various units like teacher training department; in curriculum development centre; in primary and secondary bureaus, etc.
6. Scope and level of ICT programme	**Definition** This refers to geographical scope and educational levels (whether ICT programme is being implemented at the national or provincial or pilot level or in all educational levels of primary, secondary, tertiary, non-formal education)
	Purpose This will indicate the level of development, breadth and depth of the ICT programme and whether to expand or refocus/prioritize scope and school level
7. Monitoring and evaluation scheme or mechanism	**Definition** Detailed plan to monitor and evaluate progress of implementation of activities based on master plan as evidenced by monitoring and evaluation schedules, instruments, plan for data gathering and analysis of monitoring and evaluation data and presence of reports both at the national and sub-national levels
	Purpose Presence or absence of monitoring and evaluation scheme or mechanism will show how a systematic direction is being given to the programme. It is aimed at showing how activities are being implemented/not implemented as planned based on master plan and timeframe both at the national and sub-national levels. This also shows intent of the ICT for education programme to make improvements as it progresses

8. Statement of inclusion of women, minorities, and those with special needs in ICT policy	**Definition** A specific statement in the ICT policy on education for inclusion of these special groups as clientele, beneficiaries, actors and developers of ICT in education
	Purpose Presence or absence of a statement would be one way of determining the intent not to marginalize these groups in the use of ICT in education However, such statements should be cross-checked with actual projects/activities to determine whether such policy statements are being actualized.
9. Manner by which the country and schools implement ICT for education if no ICT policy exists	**Definition** Often, countries are implementing ICT activities or projects and using ICTs in schools even if there is no national ICT for educational policy. Such activities could be part of a regular programme; as a project; as an ad hoc activity, etc. This will also generate a list of ICT projects being funded by either the government or outside funding
	Purpose This will reveal countries' attitude towards having an ICT policy as well as capacity to develop a policy. It will also show how countries can undertake ICT activities/projects even without a policy and master plan and whether because of this, an indication could be extracted as to whether the direction or strategies being taken are either relevant and appropriate or not.
10.Existence of technology master plan in schools	**Definition** A blue print for the technology development of a school which outlines ICT hardware and software build-up, staff development and curricular offerings, among others.
	Purpose Presence or absence of a technology development plan indicates commitment and how seriously or efficiently/inefficiently the school management is implementing its ICT policy

Indicator Component 2 : ICT Infrastructure and Access

Disaggregated into:

- formal
- non-formal
- primary and secondary education.

<table>
<tr><th colspan="2">A. Enabling environment</th></tr>
<tr><td rowspan="2">1.Access to and use of the following by a) no. of schools and non-formal learning centres; b) no. of students/learners, c) no of teachers/school staff
▪ electricity
▪ computers
▪ handhelds (PDAs)
▪ telephone
▪ intranet
▪ Internet
▪ TV/VCR/VCD/DVD
▪ Radio
▪ (see questionnaire for complete listing)</td><td>Definition
Actual count of schools (formal and non-formal) and learners/students and teachers with:
• Access to electricity able to support ICT facilities during school hours;
• Access to communication facilities, e.g. telephone, fax machines, mobile phones
• Access to computers, PDAs
• Access to Internet
• Access to Intranet
• Access to TV/CVR/VCD/ radio, and other ICT facilities
• Access Satellites, cable</td></tr>
<tr><td>Purpose
Availability/non-availability of the mentioned infrastructures and ICT facilities and the number available determines the level of development of ICT use in these schools/NFE centres and the extent by which use of ICT in education is being enabled by the presence of such facilities</td></tr>
<tr><td rowspan="2">2.Number of computers per 100 students/learners</td><td>Definition
The student-computer ratio is a proxy measure of the access or availability of computers to students in schools/NFE centres. Only computers used for educational purposes are included in the ratio</td></tr>
<tr><td>Purpose
One measure of compliance to policy on ICT for education is higher ratio of computer to students/learners which also means that schools/NFE centre or ministry implements what is in the master plan. This also shows how schools/NFE centres meet the ideal situation of obtaining the desirable ratio between students and computers</td></tr>
<tr><td rowspan="2">3.Number of hours per week for ICT-aided instruction (percentage of schools using computers by number of hours)</td><td>Definition
In a 40-hour/week school hours, indicate average number of hours a teacher uses computer for instruction, including lesson preparation, recording student data, and preparing for classroom teaching</td></tr>
<tr><td>Purpose
To determine adequacy or inadequacy of time given to the use of ICT in teaching/learning and to plan for further improvements</td></tr>
</table>

4. Access and use of computers after school hours within and outside schools (percentage of schools with access to computers after school hours)	**Definition** To determine whether teachers and students are able to continue their ICT-based teaching and learning after school hours either within or at other locations like home, cybercafe, at friends, etc.
	Purpose This will help school administrators to determine whether ICT use is related to the number of hours in which students and teachers are able to access computer and related technologies and whether access to ICT after school hours can be permitted in the schools by extending opening hours of laboratories. Knowing whether or not there are ICTs and computers outside of the school that can be accessed will help school administrators to mobilize external resources for purposes of supporting school-based ICT activities as well as make further improvements in ICT-based teaching contents and methodologies.
5. Location of computers in schools/NFE centres (percentage of schools with computers by locations)	**Definition** Shows where computers are located in the schools/NFE centres and percentage of students and teachers using computers in identified specific locations, e.g., computer laboratory, classrooms, administrator's office, teacher's lounge, etc.
	Purpose Knowing the specific location of computers in schools/NFE centres will indicate whether or not there is an environment that allows maximum use and accessibility of computers and related technologies. It will also show the level of sophistication in ICT facilities in the schools/NFE centres
6. Number of schools collecting fees for use of ICTs	**Definition** This indicates some impediment to full and free access to ICT use. Some schools/NFE centres collect fees for general computer use or for computer courses; use of computers after class by students, etc.
	Purpose Access to computers can become limited or constraint because of fees that may not be affordable to everyone. This is also an indication as how ICT is narrowing or widening access gap

B. Internet connectivity	
1.Number of computers connected to the Internet either as stand alone or networked (percentage of schools connected to the Internet by networked or by stand alone)	**Definition** Actual number of computers connected to the Internet in any of the following means: dial-up connection, through a service provider, through satellite, etc., in any set-up, e.g., stand-alone, networked, etc.
	Purpose One way of measuring the status or stage of ICT implementation is through the number of computers connected to the Internet. This shows the capacity of the schools/NFE centres to provide access to Internet and extent of users coverage The more computers are connected to the Internet, the more learners are able to access the Internet as a rich source of information. The indication that computers are networked also indicate the level of capacity/sophistication a school/NFE centre has in promoting more accessibility to technologies
2. Kinds of Internet connection and speed/bandwidth by schools and learners (percentage of schools with Internet connection by types of connection)	**Definition** This examines how Internet is connected, such as through: A. Modem-dial up-analogy connection over normal telephone lines with speed ranging from 14kbps to 56 kbps (slowest connection) b. ISDN (Integrated Services Digital Network) –uses digital connection over normal telephone lines using fiber optic circuits and can deliver up to 128 kbps or four times much faster than dial up. Efficient in downloading graphics, web pages, sound and multimedia c. Internet access via cable modem d.DSL (Digital Subscriber Line) – operates on normal telephone line but can be used simultaneously with telephone. There are two kinds- ADSL and SDSL which provides different speeds from 354 to 1,000 kbps e. Broadband cable – uses cable TV and connected all the time and can offer 1,000 kbps download and 128-500 kpbs upload f.Satellite broadband – uses satellite through a dish antenna and sends digital connection up to 128 kbps or g. satellite access sometimes means that content can be downloaded at certain intervals with no means of uploading g. Wireless (wi-fi, infrared, VSAT, etc.
3. Number of hours in a month used by schools accessing the Internet in a month (percentage of schools with Internet access by number of hours used in a month)	**Definition** Over a one-month period, indicate the average hour the school/NFE centre accesses the Internet x number of terminals
	Purpose This indicates the extent to which Internet is being used in schools/NFE centres and will enable planners to design their ICT-based lessons and teaching/learning materials accordingly and how teachers can maximize online resources to support their teaching

4. Source of payment for Internet connection	**Definition** This examines whether Internet connection is provided free of charge or subsidized through tuition fees or local government or other sources
	Purpose To determine how such fees or payment deter from accessing or using Internet-based information resources regularly or how affordable/unaffordable the use of Internet is for a number of users
5. Access, use or possession of e-mail and websites by no. of schools; no. of teachers and other staff (principal); and learners (percentage of teachers, students, principals with email, website, etc.)	**Definition** This indicates number of schools, teachers, principals, learners with e-mail and websites developed and maintained by them
	Purpose Schools/NFE centres with websites would indicate the stage of technology advancement they are in and level of ICT usage in schools by teachers and learners. The number of teachers and learners having their email and websites also signify level of sophistication of ICT use in schools/NFE centres and will enable planners and materials developers to mobilize and maximize more Web-based resources and online learning

C. Systems and hardware	
1. Number of PCs running on various platforms (Windows, Linux, etc.)	**Definition** Indicate whether the operating platforms used us Windows, Linux, Apple Macintosh, Unix, DOS, and whether they use Pentium and have CD Drive or not
	Purpose This information would help indicate whether or not schools/NFE centres have similar and up-to-date platform and systems that will facilitate sharing, exchanging, working on related and joint ICT-based or not and promote networking.
2. Age of computers	**Definition** To determine how long the schools/NFE centres have had the computers by years ranging from 1 to more than 8 years. Age of computers will also indicate the power and capacity of the computer.
	Purpose This will indicate uo-to-dateness and efficiency or non-efficiency of computers as effective support to teaching/learning

Indicator Component 3: Curriculum/textbooks	
Disaggregated by: • Geographical location (rural or urban) • Educational level • Type of education (formal, non-formal, and special education) • Subject • National minorities	
1. Existence of a prescribed curriculum at all levels, both formal and non-formal and those for minorities and with special needs that incorporates ICT (to be sourced from both national and school level).	**Definition** Incorporation of ICT in curriculum is said to be required if this is mandated/prescribed by the ministry or a department or some institutions outside the ministry and that all schools should adhere to this mandate. Curriculum is defined here as curriculum to teach ICT (as in computer literacy) and subjects curriculum that incorporates ICT use Optional when the schools can decide by themselves without sanction from the ministry or sub-national authority on what their curriculum for ICT would be It would also be useful to know if the curriculum exist in the language of instruction or in the language of interface
	Purpose To determine if ICT use/integration into curriculum is standardized based on prescription by the ministry or sub-national authorities. If optional, each and every school can have their own ICT curriculum This would also indicate that the ministry wants that all clientele in the formal, non-formal, minorities and those with special needs get the same ICT curriculum as prescribed.
2. Manner in which ICT is introduced or being taught in the school and the hours spent on its teaching (percentage of schools which is using ICTs by types of teaching and by hours sent on it)	**Definition** This examines whether ICT is being taught as a separate subject; integrated in all subjects; integrated in some subjects or as an elective; integrated into elective subjects; as a special programme, as well as looks at the number of hours spent for each.
	Purpose This question could indicate the degree of attention, support and resources being given to it by the Government and the level of development of ICT use in the schools. A country for example may be in the advancing stage if ICT is already being integrated in some or all subjects as a tool. This would also determine the stages of use of ICT in education in the schools are, e.g., as in emerging – when schools are in the stage of teaching ICT as a subject; applying – when schools are using ICT as tools for teaching and learning; and integrating – when schools are interactively using ICT in teaching; etc. The number of hours prescribed will indicate the depth and extensiveness of the use of ICT in teaching/learning

3. Educational levels at which ICT is introduced as a separate subject (percentage of schools which introduces ICTs as a separate subject)	**Definition** This refers to whether ICT is being taught as a subject at the elementary, secondary, non-formal education and at what specific grade levels. The numbers would tell how many schools are still in a particular stage of ICT use in education and the need to develop further. Countries may want to introduce ICT as a separate subject starting at the primary level or simultaneously introduce at all levels. One should note though that some very advanced schools may still offer ICT courses as a separate subject especially those focusing on science- so it may not necessarily mean that schools offering ICT as a separate subject are still at the early stage. Therefore, what is important here is to determine how much countries are integrating ICT into specific subjects, even if they continue to introduce it as a separate subject.
	Purpose This would determine at what level ICT as a separate subject is taught in schools and guide administrators whether it should be introduced at certain levels only or at all levels or whether at some point it should be integrated into teaching of specific subjects, instead of being a separate subject.
4. Subjects into which ICT is introduced (percentage of schools using ICTs by subjects)	**Definition** This indicatesuse of ICTs in specific subjects like ICT subject, mathematics, science, social sciences, English, local languages, art, music
	Purpose Use of ICTs in specific subjects indicate the progressive development of the ICT for education programme where ICT is being used in more integrated manner and as a teaching tool rather than as a separate subject. It will also guide curriculum planners and administrators whether or not to expand the coverage of subjects into which ICT can be introduced.
5. Purposes for which computers are being used for instruction in schools at the pre-school, elementary, secondary and non-formal education levels (percentage of schools using computers by purposes of use)	**Definition** This examines whether ICT is being used for various purposes that conform to the desired objectives/goals of ICT use in education. These various purposes could include the following: a) learning new things; b) for remedial learning; c) for regular instructions as separate subject to develop computer skills; d)Researching and accessing information; e) communicating with others; f) teaching/learning tool for specific subjects; g) development of logic, critical thinking, creativity, problem-solving; h) using basic application programs; i) for playing games and fun; j) helping with school administration and management; etc.
	Purpose This will determine whether the actual uses of computers are matching the goals of the national ICT for education policy. It also indicates the level of development in the use of ICTs in teaching as well as what the schools considers important to focus on first. It will also provide further guidance as to which areas or purposes of instructions the schools should move towards to.

6. Extent of ICT integration in the curriculum (percentage of schools using ICTs in curriculum by types and degree of integration)	**Definition** ICT integration in the curriculum would mean that the use of ICT tools and facilities becomes systematic and automatic as if it is second nature to the teaching and learning process. It would also mean that teachers and students are at ease in the use of ICT facilities and tools in the teaching-learning process
	Purpose This would indicate how countries have advanced in the use of ICT and offer lessons learned on how ICT has become integrated in schools in the teaching-learning process. It also helps in planning teaching/learning activities that integrate the use of ICT
7. Existence of software used for teaching and learning and source of these software (percentage of schools using educational software for teaching)	**Definition** Software is applications used for teaching ICT and various subjects using ICT as well as for learning various subjects and ICT both in the formal and non-formal education sectors. It is also important to identify whether these software were produced in-house or outsourced to a commercial company
	Purpose This will serve as basis for determining whether schools consider educational software necessary/indispensable in the use ICT and in supporting the teaching/learning of specific subjects as well as also signify the level of development of the programme. The level of development and expertise will also be determined when the results will show whether the software being used is produced in-house or procured elsewhere. It will also guide the planners and developers as to what software are in great supply and in high demand and in which topics they should go further into

Indicator Component 4: Teaching Professionals Use and Teaching

Disaggregated by:

- Gender
- Geographical location (rural or urban or semi-urban or semi-rural)
- Age
- Subject taught by a teacher/ librarian/administrator/ICT coordinator
- Educational level
- Type of education (formal, non-formal, and special education)
- National minorities
- Socio-economic status

1.Percentage of teaching professionals who acquired pre-service training on ICT (sourcing from national and school levels)	**Definition** The number of teachers who are actually in the service and who had ICT training prior to entering into the teaching profession as against total number of teachers in schools/NFE centres. ICT training could have been acquired as part of their undergraduate requirement prior to graduation or a teacher may have enrolled in ICT courses after graduation to any service provider prior to employment as teacher
	Purpose The number of teachers with ICT training at pre-service would indicate that at the implementation of ICT policy for education, there is already a proportion in the teaching force who can adequately handle the new curriculum and thus further training programmes and use of ICT in classrooms can be based on this incoming knowledge and skills
2. Percentage of teaching professionals who received training in the last 3 years as part of in-service training	**Definition** Number of teachers who received ICT training in the last 3 years with or without pre-service training on ICT against total number of teachers in schools
	Purpose This would indicate the seriousness of the ministry in preparing teachers with/without prior ICT training who are in the service for the task of implementing ICT policy in education. It will also help in planning for further follow-up training and in the introduction of ICT in schools
3. Level of ICT training (basic, intermediate, advanced) for both pre-service and in-service (percentage of teachers trained by levels of training as against the total number of teachers)	**Definition** Percentage of teachers in schools with basic, intermediate and advanced training on ICT obtained during in-service and before joining the teaching profession a) Basic training includes knowing and using basic operations of computer and use of basic Windows-based software such as word processing, spreadsheets, presentations, email, etc. without using them teaching of subjects in the classrooms b) Intermediate training includes the use of various kinds of applications in teaching subjects in the classrooms; use of Internet for teaching and email for communicating and collaborating with students and other teachers c) Advanced training would include the development and creation of educational software, online class, telecollaboration, e-learning, development of interactive website; production of multimedia presentations; producing creative work; etc.
	Purpose This would indicate the seriousness of the ministry in preparing teachers in the service for the task of implementing ICT policy in education by providing basic and advanced training. This will also guide the training and curriculum development planners on what programmes/ lessons/activities teachers can handle in the use of ICT in the classrooms.

4. Number of hours teachers are trained (percentage of teachers trained by number of hours)	**Definition** Number of teachers with ICT training classified according to duration of training such as: ▪ Less than 10 hours ▪ 10 to 30 hours ▪ 31 to 70 ▪ More than 70 hours
	Purpose The duration of training received on ICT is an indicator of how prepared the teachers are in implementing ICT policy in education and can guide planners in determining what is the ideal or most adequate time duration needed to train teachers effectively/adequately
5.Purpose and frequency of use of computers by number of teachers (percentage of teachers who use computers by purposes of use and frequency of use)	**Definition** Frequency of use of computers and related ICTs as against purposes of use such as lesson preparation, teaching, reporting, recording, communicating, assessing and monitoring performance in the following frequencies: Never – not used at all Seldom -not commonly used; perhaps once or twice or a few times a month Often –more than once a week Very often-regularly and most of the times; almost everyday
	Purpose The frequency of usage of ICT tools by teachers in doing specific activities helps in determining two issues: what are the most mentioned reasons for using ICT and how often is ICT used for these purposes. The first one will indicate whether ICT is used for its basic functions (making presentations, writing papers, etc.) or it is being used to promote interactive learning, critical thinking, creativity, problem solving, etc. Frequency of use indicates the level of teacher's ease of use and expertise in ICT in education as well an indication of how effective/ineffective the teacher training courses offered. It could also indicate that the computers are not easily accessible to the teachers
6. Level of expertise in the use of ICT (percentage of teachers who use computers by level of expertise for each purpose)	**Definition** This refers to the level of expertise on the use of applications; database management, spreadsheets, graphics, presentation tools, web page designing, statistical tools, e-mailing, etc. and measured in the following intensity: excellent, very good, good, fair and no capability
	Purpose To measure level of expertise of various school staff to guide directions and plans for future training programmes as well as to guide which ICT use and content areas should the programme focus more on.

7. Reasons for participating in ICT training (percentage of teachers who had been trained by reasons for joining the training)	**Definition** This refers to the reasons/incentives (such as financial, prestige, career enhancement, personal growth, training is required, etc.) that motivate teachers to undergo training on ICT or also explain why many teacher do not find the need to be trained on ICT
	Purpose Understanding why teachers participate in ICT training programmes will help training organizers and planners to redesign their training objectives and strategies to encourage more participation. It will also help administrators to put in place the most appropriate incentives to encourage more participation from teachers.
8. Use of Internet for teaching and how often (number of teachers using Internet by purpose of use and by frequency)	**Definition** Frequency of use of Internet and the purposes for its use in teaching , such as for teaching specific subjects, finding and accessing information, researching, preparing lessons and presentations, communicating with students, use of online assessment tools; use of graphics and visuals for teaching, online communication and online telecollaboration, etc.
	Purpose This will show whether more and more teachers are using Internet to access information resources for teaching and what kinds of teaching activities Internet is a popular source of information for. Corollary to this, knowing how regular Internet is used will enable school administrators to understand why Internet is frequently used or not used that much and what to do to resolve this lack of use

<table>
<tr><th colspan="2">Indicator Component 5: Student Use and Learning</th></tr>
<tr><td colspan="2">Disaggregated by:

• Gender
• Geographical location (rural or urban)
• Subject (This listing will be further refined based on an international standard.)
• Educational level
• Type of education (formal, non-formal, and special education)
• National minorities
• Socio-economic status</td></tr>
<tr><td rowspan="2">1. Number of hours of ICT access and computer use a) per learner per week of regular school for use in studies obtained from learner survey and b) number of hours per year of computer use multiplied by number of computers as calculated by the schools</td><td>Definition
Indicates approximate number of hours ICT facilities are provided/allowed for students' use per year given by school/NFE administrators multiplied by number of computers to obtain people hours. It also includes actual number of hours computer used per week during regular school as given by learner responses</td></tr>
<tr><td>Purpose

This is to determine how accessible ICT facilities are for the use of students. The longer the students are exposed to these facilities, the greater is their chance to develop the skills, and knowledge in using/applying and integrating ICT into their learning process. A much positive attitude towards ICT is also expected. This will also help administrators to determine how to increase usage of computers if the usage is lower than expected.</td></tr>
<tr><td rowspan="2">2. Number of learners with ICT access outside school</td><td>Definition

To measure exposure of students to ICT use outside of normal schools or instruction periods. Number of learners in a school (formal/non-formal and learning centers) who can use or can have access to ICT facilities even outside of the school for learning purposes.

Outside school can be at home, commercial cyber cafés, other educational and entertainment centres, etc.</td></tr>
<tr><td>Purpose
This would indicate the level of ICT facilities being accessible and affordable commodity in the locality where the school is located and thus will help teachers plan activities and assignments which can be undertaken outside of schools. It will also help the schools plan for the improvement of their online learning and communication.</td></tr>
</table>

3. Actual use of computers and related ICTs in subjects schoolwork (percentage of students who are using computers by various purposes or uses)	**Definition** Indicates which subjects students are using ICTs and computers in actual learning, e.g., computer class, mathematics, science, social sciences, local language, English, art, music
	Purpose Helps determine whether students are able to use ICTs and computers as learning tool for doing schoolwork on specific subjects and whether ICT use is becoming integrated into teaching/learning process. It will also help schools plan how to extend the use of ICT in other curricular offerings
4. Levels of skills in use of various ICT applications (percentage of students who use computers by levels of skills)	**Definition** Number of learners who can demonstrate basic, intermediate and advanced skills. Below are the definitions of the various levels of skills: a) Basic ICT skills include the ability to use commercial software such as word processing, spreadsheets, database, presentation software, etc. per se without using them for learning/teaching and for one's own personal purposes b) Intermediate skills include the use of ready-made software and applications mentioned above in learning in and out of schools such as in doing assignments, lessons, presentations, spreadsheets, collaborative projects, searching for information, emailing assignments, etc c) Advanced skills include creation and development of new applications, educational software, ICT-based materials and use of online learning, participating in discussion groups, telecollaboration, development of dynamic websites, advanced content creation, etc.
	Purpose Knowledge on the level of skills of learners in the use of computers and related-ICTs would help teachers, curriculum developers and school/NFE managers to re-design their teaching/learning materials as well as plan for further training of either the students or teachers (for teachers to keep pace with the speed of skills development of learners) in this area. This would help indicate to teachers and materials developers as to how interactive and sophisticated they can be in developing their ICT-based lessons and what software/applications they can use.
5. Source of learning of computer and ICT-related skills (number of students who learned ICT by sources/location of learning)	**Definition** This examines where students/learners developed their skills in the use of computers and related ICTs (whether self-taught, or from teachers, friends, etc.)
	Purpose Helps determine or deduce whether source of learning was effective, credible, authoritative. adequate and systematic and whether further and more formal training is required

6. Use of ICT in schoolwork by number of learners and degree of use (percentage of students who are using computers by purposes of uses)	**Definition** Number of learners in a school who are able to use ICT for the following purposes in greatest degree: **Informative**: ability to acquire and use information **Functional**: ability to use and manipulate existing information for educational purposes **Creating** – ability to compose, compile, produce new information **Communication** – ability to exchange information Degree is measured by very often (everyday), often (twice or more a week), sometimes (a few times a month), rarely (once in several months), not at all.
	Purpose The ability of learners to use ICT for the mentioned purposes indicate the level of their expertise and utilization of ICT facilities and will thus guide school/NFE authorities, curriculum developers and teachers where to focus more, i.e., if creativity and critical thinking as well as sharing and discussing ideas are the desired learning goals, then more focus should be placed on the creative and communication uses of ICT
7. Favourite uses of computers	**Definition** ICT and computer-based activities considered as favourite and found most interesting by students/learners such as e-maling, chatting, downloading games, surfing the Internet, using educational software, etc. These activities may be and may not be linked to schoolwork or learning situations but learning can result as by-products of these activities.
	Purpose To determine whether computers are being used for productive or unproductive purposes as far as school/NFE learning is concerned. Teachers and materials developers can be guided as to how they can gain the interest of their students in learning class work as well as redirect unproductive activities to more productive ones. It will also help identify favourite activities which can result in learning as by-product of such activities.
8. Access to Internet for surfing websites and how often(percentage of students with Internet access and percentage of students using Internet for schoolwork)	**Definition** Indicates number of learners with or without access to Internet and those with access, and how often they use Internet for surfing the websites in schoolwork.
	Purpose Helps determine to what extent Web-based activities and lessons can be used in teaching/learning. If access to Internet is limited and used rarely, either classroom activities will be limited to offline use of ICT or the administrators determine the cause of non-access and limited use in order to address the problem

---