**Research Project –
The Use of ICT to Support Basic
Education in Disadvantaged Schools and
Communities in Low Income Countries**

Workshop Report 1

On the Immersion in the Schools of Rwanda

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Kigali Institute of Education

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   The Use of ICT to Support Basic Education in Disadvantaged Schools and Communities in Low Income Countries.

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1.   List of Acronyms

DfID   Department for International Development, UK
FAWE   Forum for African Women Educationists
KIE   Kigali Institute of Education, Rwanda
KIST   Kigali Institute of Science and Technology, Rwanda
MINEDUC   Ministry of Education, Rwanda
NEPAD   New Partnership for Africa Development
RITA   Rwanda Information and Telecommunication Authority
USAID   United State Agency for International Development

2.   Introduction

This report presents the information gathered during the meetings with educational authorities in Kigali and during the visits to schools in Kigali and other provinces of Rwanda.

Based on this information, it also draws some comments and questions that need to be discussed during the design stage of the project.

3.   Rwanda's Educational System

Some facts about the education system in Rwanda:
- The educational system consists of two types of schools, primary (grades 1 to 6) and secondary (grades 7 to 12). Primary education is compulsory and the plan is to make lower secondary (grades 7 to 9) also compulsory. The school attendance (enrolment) is approximately 83% in primary and less than 50% in secondary.
- There are approximately 2,500 schools in Rwanda (2,000 primary and 500 secondary).
- Many of the secondary schools are boarding schools.
- From an administrative standpoint, there are three types of schools: state owned, semi independent (mostly owned by the church) and private.
- The primary state schools are free for the students. The secondary state schools are government subsidized and students pay approximately RWF 20.000 per term. The private schools charge approximately RWF 50,000 per term. The semi independent schools charge approximately RWF 25,000 per term.
- For the primary schools, the state pays approximately RWF 2,500 per student per year to each school.
- The salary of a primary teacher in Rwanda is approximately RWF 25,000 per month and of a secondary teacher is approximately RWF 50,000. An average member of the staff of a University has a salary of RWF 300,000 and from 2006 doctors will earn approximately RWF 400,000 a month.
- There are three national examinations for students: Grade 6, Grade 9 and Grade 12. Schools are ranked based on these results.
- Almost all the teachers in primary schools are qualified. In secondary schools many teachers are not qualified, because training for secondary teachers is relatively recent (pioneered by KIE).
- In secondary schools a full time teacher is hired for not more than 28 hours a week.
- In state schools classes have, on average, between 40 and 60 students each.

4.   Institutions and Projects

4.1 ICT Unit of the Ministry of Education

The Ministry is currently in the process of providing 400 secondary schools (both private and public) with 10 PCs. To qualify for the computers, schools have to have an extra room and access to electricity. The distribution of computers should be finished by June 2006.

Computers will currently be used in ICT lessons, but the ultimate aim is to use computers for learning a range of subjects. Currently there is no curriculum for ICT.

Two teachers are selected from each school to be trained in basic computer skills (word processing, spreadsheets etc). So far 3,000 teachers have been trained. Training is carried out in district level ICT centres by KIST with Mineduc. 18 schools that already had some computers have been made centres (each has about 30 computers).

At district level the government is putting a person in charge of ICT. In July the Ministry of Education will train one person at the district level in computer trouble shooting and management.

The Ministry is working with KIST (ICT department) who are going to carry out an energy survey of all schools. KIST computer science students will carry out the fieldwork as part of their degree training. One of the aims is to understand the energy needs of schools without power (see section 4.2).

An additional aim is that communities will also be able to access ICT.

Current challenges are that the power in schools is not enough and that there are only two ICT people in the Ministry.

So far the Ministry does not have a direct hand in use of ICT in primary schools. World Links has equipped 2,200 primary schools with a laptop and a solar panel. Some other projects, started by NGOs, want to equip primary schools.

4.2 Kigali Institute of Science and Technology (KIST)

The Director of ICT Centre explained that they are using a two pronged approach:

1) Building capacity in education in various fields (degree programmes, masters degrees, eventually a PhD programme).
2) Building links to community — use ICT as a tool in various endeavours.

The Director said that KIST was interested in collaborating with KIE and was about to set up a meeting. He talked about content needing to be digitised, people in rural areas not being literate and so needing images as well as text, distance learning programme, two satellites, and the drive for basic education.

The Director discussed a range of projects that KIST are involved in:
- A project working with children of single parents and orphans; older children will be trained to work with younger children. The aim is to create content in local language and English, using multimedia applications. The project is starting in Kigali.
- World Links Project (now ended)
- NEPAD project that involves equipping 6 secondary schools in Rwanda with ICTs. NEPAD is a broader project that involves 20 other African countries.

- KIST computer science students will be given field attachments and will be involved in: systems analysis; starting of computers; creating local area network; power requirements and needs analysis for teachers.
- Distance learning to support teachers with basic computer literay, trouble shooting etc.
- Development of an e-library (KIE and other institutions are also part of this).
- A project with the University of Southampton (UK) to give 5 computers to schools.

The Director emphasised that:
- what schools do with ICT should come from the grass roots, bottom up approach.
- When creating content, creators should search locally before searching globally.
- There is a need to create local content.

4.3 Rwanda Information Technology Authority – RITA

RITA is in charge of the coordination of the ICT policy of the government. It monitors the implementation of the national network (installed by Terracom) and also implements some initiatives in the country. The main issues mentioned during the meeting were:

- RITA coordinates the acquisition of low price computers for schools from the UK based NGO "Computers Aid International". The PCs are sold at US$100 each. Schools must apply to buy these computers. RITA informs schools about this using radio and TV advertisements. Around 70 schools have currently participated in this. Schools are expected to pay for these computers from their own budget.
- RITA plans to coordinate the government's initiative to install telecentres in different provinces. The rationale is to add up efforts from different ministries (health, justice, education) that are interested in providing computer access to the public, by installing a centre equipped with 30 computers and Internet access. In addition to these, the telecentres will be equipped with faxes and telephones for public use. One telecentre started by RITA is already operating. Some private companies are also interested in investing in their own telecentres.
- The Universal Access Fund. RITA said that the government would provide funding (subsidy) to extend the Internet to rural areas. The company in charge of this is ARTEL.
- The Ministry of Infrastructure is working with RITA to explore alternative power supply to rural areas.
- RITA has sampled 70 schools to find out about computer provision and what they are being used for; the Report is still in draft form.
- RITA said that they had visited Singapore and had been influenced by their approach to ICT in schools.

4.4 Kigali Institute of Education – KIE

- KIE has a population of approximately 2,000 students in Kigali and 465 at a distance. The students in Kigali are pre-service, while the 465 are in-service, but unqualified.
- They have a network 10 Centres (4 regional and 6 provincial) that they use to train secondary teachers. All the Centres are based in secondary schools. The 4 regional Centres are equipped with 20 computers each and some of them have also Internet connection.
- KIE has a similar network for primary schools (TTC – Teacher Training Colleges).
- Distance Education Project. The program started in 2001 and they have no graduates yet (first will graduate in 2006). The project was funded by DfID. They have prepared modules for training teachers in 8 subjects (Language, Mathematics, Science, etc.). They expect this project to become a regular program at KIE, funded

by the Ministry. They estimate that there are 6,000 secondary school teachers who are unqualified.

4.5 Advisor of the Ministry of Education

The Ministry of Education is coordinating the ICT in education projects and initiatives in the country through an "ICT in Education Forum". The participants in the forum are: Mineduc, KIST, RITA, Nepad and others. During the meeting it was agreed that it would be very good and useful for Edmond Were to participate in these meetings, representing KIE and the project.

4.6 NEPAD: e-Schools Initiative

The New Partnership for Africa's Development (NEPAD) is a vision and strategic framework for Africa's renewal. The NEPAD strategic framework document arises from a mandate given to the five initiating Heads of State (Algeria, Egypt, Nigeria, Senegal, South Africa) by the Organisation of African Unity (OAU) to develop an integrated socio-economic development framework for Africa. The 37th Summit of the OAU in July 2001 formally adopted the strategic framework document.

The NEPAD e-Schools Initiative provides equipment (computers, internet, projector, laptops and interactive whiteboards), contents (ICT skills training packages, subject related materials) and support (troubleshooting and coordination) to groups of secondary schools in 16 countries in Africa. The aim is to build capacity on ICT use in the countries.

In Rwanda, Microsoft and CISCO are in charge of three secondary schools each. During the conversations with the coordinator of the project in Rwanda and the Director for Africa of the NEPAD: e-Schools initiative of CISCO, they explained that one of their aims was to develop ways to use IC in education so that Ministry of Education could take advantage of them (replicate, explore and/or experiment). In this context, it was agreed that we should look for a way to develop a partnership in which we can share the experience of NEPAD and of the project, particularly focused on teacher development/training issues.

5. Schools

5.1 Saint Aloys

A secondary school with a population of 1,906 students (1,120 boarding), 27 full time teachers. Average of 50 students in each class. Francophone.

They have 20 computers and currently have no internet access (they had before, but it broke). The computers were provided by KIE, as part of the distance education project. They use the PCs for teaching accounts to students in grades 4, 5 and 6. No computer in principal's office.

Two teachers have been trained to use ICT by ministry programme (but principal said that these teachers have now forgotten

everything). They have no other teacher that could teach ICT skills to the other students.

Four teachers are taking the distance education program of KIE.

After 16:30, students take extra-curricular programmes but do not use computers in this time.

They mentioned that they felt a bit disappointed because the promises were not fulfilled.

They need more PCs and Internet.

5.2 Rwamagana Primary

A primary school with a population of 682 students (70 per class) and 11 teachers. The school has no electricity and the infrastructure is poor. Francophone.

They have one laptop computer (given by World Links) and they charge it in a place near the church that has electricity.

The principal uses the laptop to train other teachers of the school on Saturdays. They are still trying to learn how to use the computer: open/close, some word processing. Don't have access to a printer. She has never used the internet.

They do not ask for the use of the computer lab of the nearby Saint Aloys secondary school because they feel insecure about their ICT Skills

"we need to learn how to operate the small computers first and then we can start learning to work with the big ones".

5.3 Gahini Primary

A primary school with a population of 868 students. Francophone. World Links provided them with 3 computers, located in the principal's office. They don't have internet access. They use the printer of the hospital to print.

Two teachers were trained in ICT by World Links. After this, the school hired an ICT trainer to train 5 teachers because they felt that the training by the Ministry was not enough. Altogether 10 teachers have worked towards an ICT certificate. They seem to work as a peer support group, very much initiated by and supported by the head. One teacher said that they came after school and in the holidays to try things out and learn for themselves. She also said that she used the computer to play games.

The ICT teacher taught the students of grades 4-6 about the PCs (bringing about half the class to the 3 computers in the principal's office) We observed a group being taught by the most experienced ICT teacher. Teacher used traditional question and answer technique: what is this? (pointing to screen, keyboard, mouse etc). Students all keen to respond. They were then asked to turn on/off the computer, open Word, write their name. Good working atmosphere with all students very engaged. The teacher seemed to give boys more chance on the computer than girls until one member of our team pointed this out to her.

In general terms they managed to make a very good use of the rather few ICT resources they have.

5.4 Gahini Secondary

A secondary school with a population of 1,400 students (1300 boarding) and 45 teachers. It integrates blind students (about 80). About 60 students in each class. Francophone

They have 10 computers donated by Australia (no Internet) and 10 computers from the Mineduc. There is a computer and printer in principal's office.

> Teachers were trained by KIST, and they use computers to prepare their exams. We did not observe the computers in use.

5.5 Islamic Rwamagana

A private secondary school with 510 students and girl boarders. Of 510 students 293 are girls. 17 teachers. Francophone. Only 27% of students are Muslim. The school charge RWF20,500 for day school per term and RRWF41,500 for boarders per term.

XX computers, which are used for students who are studying accounts. They hope to receive 10 more computers. These computers are not linked to a printer but teachers can have access to a printer (in principal's office?). Don't have internet access but would like this. If they had more computers would use them to teach basic skills for each class.

2 teachers trained by Ministry of Education programme.

5.6 Saint Vincent

A secondary school (girls only) with a population of 404 students (boarding) and 21 teachers. Francophone.

They have 46 computers donated by Mineduc (10), World Links (16) and Congregation (Sisters?) (20). Only 26 are working. They had Internet access but the connection broke. They have a projector, but it is too old. Recently received 10 computers from Ministry. Computer and printer in principal's office.

They use the computers to train secretarial studies' students and the rest of the students also use them to learn to use word and excel. Each class uses computer for 2 hours a week even though ICT is not in the curriculum.

They don't use them to teach other subjects. But if computers were connected to Internet, they would use them to teach maths and science. Said that some students know about using the internet.

Specialisms in school: maths/physics; biology/chemistry; secretarial studies. Students prefer to study sciences and school is going to stop offering secretarial studies.

They have built a new science lab and they are waiting for funds to equip this.

Teachers use the PCs sometimes. Principal said that she learned to use the computer "by doing" and she is using it for administrative tasks.

While they had Internet access the community came to use the computers and they charged (RWF 400 per hour). Students pay RWF 28,000 per term.

They value the use of ICT (Internet) because it would allow teachers to stay updated and get in touch with other teachers (in other countries).

The principal seems very outward looking and is on Mineduc ICT com-mittee. She has placed blackboards on the outside courtyard walls so that students can gather around and make their work more open.

5.7 Sonrise

A primary school with a population of 456 students (boarding). They are starting secondary and currently they have 156 students in grades 7 and 8. 3/4 of the students are orphans. Opened 5 years ago and will eventually become full secondary school. Anglophone.

They have 3 computers, no Internet. Two teachers have been trained by WorldLinks.

They have plans, such as receiving 180 computers and using them to teach ICT skills as well as to put one computer in every classroom (supposed to be being donated by someone who visited from the UK). Plan for all teachers to be trained. They are also trying to equip their new science lab in the primary school.

We observed a group of students working on the computers. Teacher first asked them to identify the parts of the computer. They opened word and started to write their name.

They have a good vision of what they want. Business manager who showed us around seemed to have loads of initiative and entrepreneurship potential.

5.8 Ecole Primaire Ruhengeri

A primary school with a population of 1,200 students. About 60 students in a class and P1 – P3 are in shifts. In general the conditions of the school's infrastructure were very poor. Francophone.

They have 2 computers (donated by World Links) that were not working. But, during the visit we fixed one in 10 minutes.

Two teachers were trained by World Links. Two teachers said that they had used an internet café. They do not use the computers very much. Sometimes take class to be shown computer and its parts.

5.9 FAWE Secondary

A secondary school with a population of 760 female students (boarding), 28 teachers. Classes of about 40 students. It is a model school. A new school and only one class graduated so far.

They are using ICT to teach science subjects (school has an emphasis on science). Not yet able to measure increased performance.

During the visit we observed a biology class taking place in the computer room, a spacious room with computers arranged on tables around the room and also in rows in the middle. Students worked 2/3 to each computer. In groups they had been asked to use the internet to investigate: biology – study of living things; the function of the lungs; the heart; biological cell; digestive

system. Each group worked on one of the above areas and had been asked to use one of the following search engines: www.google.com, www.anatomia.com, www.yahoo.com, www.ntic.net. The students were given little time to conduct the searches. As we left the lesson some groups were being asked to feedback (verbally) on their investigation.

In addition to the academic programme, the school has a confidence building programme called Speak Out.

Many of the students come from well-accommodated families. Students pay RWF 102,000 per year.

The school frequently receives visitors from other countries (Australia, women MPs from Niger, science advisor to government from UK, MPs from G8 countries). Usually have 1-2 science teachers from UK doing VSO. The school has links with other schools through the internet (e.g. Miami school in the United States of America).

They have 45 computers all connected to the Internet, 1 printer and one projector (in use).

The Internet connection is paid by the Mineduc.

Teachers were trained by KIST for a period of 3 months (evenings). Also World Links trained some teachers who trained others. They have trained teachers from Northern Province.

The Head of the school thinks that potential benefits of ICT are immense, makes teaching and learning much easier. There is a shortage of resources, books etc, internet is a very good resource.

5.10 Kacyiru Secondary

A secondary school with a population of 275 students, 16 teachers. It is a Mineduc pilot school for management. School opened 4 years ago. The school hopes to offer science as a specialism if they can get the resources to build the labs. Francophone.

They have 12 computers donated by Mineduc (10) and the former district office (4)(no Internet access). They hope that when they have internet access they can offer the computers to the community (for a charge). Computers are not used by students after 16:30.

2 teachers were trained (ICT skills).

Students are learning to use Word   (1 hour per week).

Many students from this school said that they had used internet in the Internet cafés before.

We observed a group of students using Word. In general they seemed rather more experimental when using Word than we had observed with other groups. We wondered if this was because many of the students use internet cafes. One student said that he used the internet to write e-mails to his pen-friend in Belgium and also to write to his aunt.

5.11 Rugando Primary

A primary school with a population of 1,188 students, 17 teachers (3 of them are paid by the school). Younger students are taught in shifts. Francophone.

They received 2 computers from World Links and a printer.

The computers are used by the principal mainly and only very few students go and use them during the breaks.

The Principal (who was new) said that they did not ask for support from the nearby secondary school (see 5.10).

5.12 Rwimbogo Primary

A primary school with a population of 500 students, 24 teachers (also pre-school). A private school, although some children are orphans and do not pay. Classes have tended to be relatively small. Francophone. The school charge RWF 20,000 per term.

They have 1 old computer in the principal's office.

The computer is used sometimes to write some documents.

It is a very poor school that is part of the UEITDC organization (12 schools in the country). Mission of school relates to evangelism.

Have planned an ICT programme but need resources to help them implement this. The school has 5 teachers trained to teach ICT skills.

5.13 Saint Andre Secondary

A secondary school with a population of 950 students, 43 teachers (boys are boarders). It is a NEPAD school (New Partnership for Africa's Development). Francophone.

They have 20 computers (last generation), 5 laptops (for teachers), smart board, projector, scanner, Internet, wireless network. All given by NEPAD in November 2005.

Computers are used by teachers after 4.30 but not by students.

They also received a lot of materials to use ICT in subject teaching (some of these prepared by CISCO). CISCO materials also installed on each computer. Some of these appeared to be very text based, when they could be more multimedia based.

Computer-based maths materials very influenced by UK curriculum and approach to teaching maths. Is this relevant in Rwanda?

Teachers were trained by NEPAD in ICT skills. A fulltime ICT teacher has been employed by the school.

Students are being taught ICT skills, one hour per week (this only started one month ago). We were told that this involved 20 mins of theory and then 30 mins. of practical work. We did not observe a lesson.

The NEPAD programme will eventually be taken over by Mineduc.

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6.   General comments

6.1 Infrastructure

In many cases computers available in schools are relatively old; the majority of the computers run Windows 98 and have old processors. They have CD ROM, but not necessarily working. The only software available is Microsoft Office and some games. Internet access is often not working even if it had been previously. However, a small number of schools are very well resourced by international standards.

In Kigali some schools are connected to the Internet, but very few schools from the rest of the country have Internet connection.

6.2 Technical support

In general schools do not have technical support available, therefore many computers are not being used due to technical problems (some of them could easily be solved). This is the case even for schools located in cities/villages where they could ask for help from a technician nearby.

6.3 Educational resources

There is a lack of educational software. In fact, only two schools had educational software and only one was using it.

In general, the interviewees did not mention educational software as a need. There seems to be a lack of information/understanding about the potential uses of educational software to support teaching and learning.

6.4 ICT use

If schools have ICT available they tend to use it primarily for ICT skills (apart from two schools who used it for Accounts specialism and one school who used for Secretarial specialism and one school who used it for teaching science).

Schools do not appear to be making ICT resources available outside the normal teaching day.

6.5 Teacher training

The training provided seems to be limited to basic ICT skills and in general teachers are not given enough practice.

6.6 Teaching and learning

Teaching approaches seem to be rather traditional, but the content seems to be very advanced (in comparison with curriculum in England). When computer skills are being taught there seems to be an emphasis on first teaching names of parts of the computer (e.g. mouse, keyboard, screen). We wonder if this is the approach being used when teachers are being trained.

6.7 Community access

No school visited is making ICT resources available to the community, although several principals talked of wanting to do this.

6.8 The role of Internet cafes and other resources in the community

Children in Kigali have much more opportunities to be informally integrated into the information society compared to the children outside the capital.

Some learners seem to have acquired their ICT skills from the Internet cafes rather than from the school.

In general very few learners had access to computers in their homes.

6.9 Resource sharing

In general there seems to be no sharing of resources and communication between schools even where schools are divided by a fence.

6.10 Questions/issues for the project

Rwanda seems to be running (or cycling) towards development. There are various examples of entrepreneurship.

What does it mean to jump into the Information Age?

- Need to create a learning community/network amongst teachers in project schools (see example of Gahini primary).

- Teachers seem to use a very hands-off approach to teaching ICT skills. Does this relate to how they are trained?

- Need to build from the ground, understanding what teachers do and from there propose new methods, which could be appropriate and useful in their context and within available technical resources.

- There is a need to involve teachers in the development of a model of teaching Science and Mathematics using ICTs.

- Need to understand how students and teachers are using ICT in the community (e.g. in internet cafes), as well as their understanding of ICT.

- Leadership and involvement of the Principal in ICT use in schools seems key to success.

- Do teachers in schools take ownership of ICT when introduced by an international project (e.g. World Links)?

- How will projects such as NEPAD impact on whole country?

- What can be learned from other projects (e.g. KIST projects, FAWE, NEPAD)?

7.   Some Analysis

7.1 ICT: computers and/or Internet

Generally speaking, regarding ICT in "mainstream" secondary schools, it is mainly used to train students of vocational branches (secretary, account). In general they do not have access to Internet, but many interviewees recognised its potential for teaching and learning and for professional development. Also, when asked whether the community used the computers available, they responded that without Internet there was no point in opening the computer lab to the community. Moreover, they closed the computer lab after 16:30 and not even students had access to them. On the other hand, in the primary schools that were using computers, their focus was to develop students' and/or teachers' ICT skills. Finally, in both, primary and secondary schools, there was no reference to the use of educational software for teaching and learning.

Based on these results one could argue that in secondary education, Internet (and not computers) is being considered as the main ICT tool that could be useful for further development of students. Also, they show that the use of computers for teaching and learning is not considered to be relevant (or is not known), except for very specific vocational areas for which ICT skills is part of the curriculum. This even if the Education Sector Strategic Plan 2005 – 2010 states that by "2008, Information Technology should be used in classrooms for teaching purposes".

This situation could be the result of three factors:

1. The proliferation of "Internet cafes" that provide the "model" for understanding/interpreting the concept of ICT.
2. The relative low use of ICT in other areas, such as small businesses, education, etc.
3. The very low penetration of computers in the homes in Rwanda.

If this is the situation, it must be considered that mainstream teachers will also have this concept of ICT and that they do not necessarily consider the use of ICT as a teaching tool.

In terms of the project, this could imply the need to change some cultural conceptions.

7.2 Teaching infrastructure and scenario

In many of the primary schools visited, teachers were teaching classes that had more than 50 students, in classrooms equipped with limited number of desks (in some cases 3 students shared desks designed for 2 students) and sometimes crowded. Also, classrooms did not have teaching resources (maps, books, models, etc.).

This situation brings in questions regarding the repertoire of teaching methods that teachers know and use in these contexts. On the one hand, it is possible that teachers are using modern methods

that enable them to manage these situations (group work, learning corners, motivation strategies, etc.), but on the other hand, it is possible that they use authority and discipline related techniques to keep the pace of the lesson (the few observations made showed frontal all class lessons).

In terms of the project, this could imply the need to include some basic training about teaching methods/strategies and classroom management techniques.

7.3 Fragmented policy implementation

Many of the sites visited did receive ICT equipment and, in general, in secondary schools they were in use. However, in many primary schools they were not being used.

In some cases this was due to the lack of technical support. In fact, computers that were provided to schools by projects that have already ended, are no longer maintained and at schools there was no one with the technical skills required to repair them. However, it must also be considered that some of the schools could have called for help near by, but they did not.

In other cases computers did work, but they were old and teachers complained that they were too slow, or they did not find any reason why they were not being used (and they gave no reason why they should use them).

In other schools they argued that the teachers that were trained in ICT have already forgotten what they learned, therefore no one was "in charge" of the computers. In others, there were too few teachers trained.

These situations show the need to implement coordinated and sustained policies regarding ICT. In fact, an ICT policy should to consider the following actions:

- **Training** about ICT and/or ICT related pedagogy for the different actors or beneficiaries of the policy.
- Provision of **resources**, such as educational software, educational web sites, statistical information, etc.
- Provision of **hardware** for the institutions that will be included as beneficiaries.
- Provision of technical and pedagogical **support** to the institutions involved.
- **Evaluation and monitoring** initiatives that help to reformulate the action lines as well as to state the results of the activities carried out.

These actions should be coherent with the educational policy and should be sustained until schools integrate these resources in their management and teaching culture.

In terms of the project, this could imply the need to include all these dimensions and to coordinate them with the national educational policy (i.e. curriculum development, teacher professional development, etc.).

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