Developing Rwanda’s schools infrastructure standards and guidelines

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Abstract

**Purpose** – The purpose of this paper is to share the experience of those directly involved in drafting the new national school infrastructure standards and guidelines for Rwanda.

**Design/methodology/approach** – The process that was followed in Rwanda, the successes, and the challenges to overcome are reported from the field experience of those involved in the process.

**Findings** – Despite a devastating genocide in 1994 and faced with continual underdevelopment and resource challenges, the commitment of Rwandans to safe and quality education illustrates how much can be achieved.

**Research limitations/implications** – The focus of the work in Rwanda was practical, yet this paper reports fundamental data from the field which are analysed within wider contexts.

**Practical implications** – Rwanda is making progress towards its medium-term education goals, based on international standards and agreements. The lessons can apply to other locations to avoid some of the pitfalls that Rwanda experienced.

**Social implications** – If progress towards safe and quality education in Rwanda continues at the same pace for the next several years, then the country will have a baseline educated population from which to continue the efforts towards development.

**Originality/value** – The case study of Rwanda is relatively unique in the literature. The process followed is fairly standard for development work, but has value in indicating that it can be successful, especially with regards to inclusiveness, in a post-political violence context.

**Keywords** Education, Rwanda, Schools, International standards, Developing countries

**Paper type** Case study

**Introduction**

This article shares the experience of those directly involved in drafting the new national school infrastructure standards and guidelines for Rwanda. They have now been successfully adopted by the Ministry of Education and are expected to be met by all primary and Tronc Commun (lower secondary) schools in Rwanda. Through these standards, the Ministry of Education of Rwanda clearly sets out the levels of acceptability as a requirement and gives practical guidance on how to achieve them.
These standards have been developed through a comprehensive consultation process with the school communities including head teachers, staff members, pupils, relevant government departments, and national and international organizations. Each topic was further developed through a technical expert review process with contributions from many specialists. The draft was then presented at a regional and national consultation meeting where directors of education, head teachers, and teachers from public and private schools gathered to give their inputs.

All this input contributed towards a final draft of the Rwanda-specific standards and guidelines. Through this article, the authors share the experience of the process undertaken and offer insights into how some aspects may be transferred to other situations and countries with similar needs for safer school infrastructure standards.

Background to Rwanda
Rwanda is located within the Great Lakes region of Sub-Saharan Africa. It is a small landlocked country of 24,668 km² in area (CIA, 2010), slightly smaller than Belgium, although in contrast to Belgium, it does not have access to ports or large rivers suitable for refrigerated transport. Rwanda is situated within the mountains at an average altitude of 1,200 m rising to over 4,000 m to the north-eastern border with Uganda and the Democratic Republic of Congo (DRC). The fertile plains of Tanzania lie to the east. Rwanda is known as “the land of a thousand hills”, with its hilly topography along with wetlands and swamps in the valleys, restricting the agricultural activity to small terraced fields. Until very recently, Rwanda had been a subsistence farming society with small communities of families farming on these terraced hills and mountains, giving the country another name of “a large garden farming society”.

Currently, Rwanda’s population is approximately 10.7 million, with an average life expectancy of 57 years (CIA, 2010). As of the 2002 census, 57 percent of the population was under the age of 15 and 84 percent of the population was under the age of 30. Only 4 percent of the population was 60 or older, partly due to the 1994 genocide (Dallaire, 2003) that included mass population displacement and subsequent conflicts, with over 800,000 people killed. Each Rwandese woman bears an average of 5.12 children (CIA, 2010), so the population is growing extremely rapidly, already having surpassed its pre-genocide level.

The population causes enormous pressure on arable land. The already small terraced fields are becoming smaller due to subdivision amongst offspring, with the risk of becoming too small for a family’s survival. Consequently, a large percentage of young rural people have few livelihoods prospects, inducing a major rural-to-urban migration, especially of young men.

Education policy in Rwanda
When a quarter of Rwanda’s 1994 population was killed or displaced (externally or internally) due to the genocide, much of the country’s educated human capacity and education processes were lost or interrupted. A completely new government structure had to be built along with capacity to govern. New policies and legislation such as the national building code, special needs education, and girls’ education continue to be formulated and developed. Rwanda’s current political directions place strong emphasis on developing the country’s human capacity, aiming for a knowledge-based economy (Musabeyezu, 2008; UNICEF Rwanda, 2007; Rwanda Vision 2020, 2000).
Consequently, the education sector takes centre stage in the country’s policies. Yet it faces many challenges, such as increasing adequate teacher training, improving girls’ education, improving special needs education, and developing science, technology, and infrastructure. School infrastructure is a key component that can contribute towards achieving better quality of safe education, to provide safe “Education for all” (UNESCO, 2004; WCEA, 1990; WEF, 2000).

The quality of and accessibility to school infrastructure varies immensely in Rwanda. Some rural classrooms house up to 96 pupils per class, as shown by a site visit to Musanze Northern Rwanda region in 2008 (Plate 1); have no electricity and have no window glass. When it rains, the shutters must be closed and the lessons must continue in the darkness (Plates 2-4). Many schools are constructed out of mud (Plates 2 and 3) or bamboo and thatch (Plates 5 and 6), which is neither durable nor safe.

This region experiences numerous natural hazards such as earthquakes, volcanic eruptions, strong winds, and torrential rain, but few schools consider these hazards in their design and operation. A recent example affecting schools is strong winds in September 2008 (Plate 7) hitting Northwestern Rwanda: 87 classrooms had damaged roofs and ten classrooms collapsed (UNICEF Rwanda, 2008b), temporarily suspending the pupils’ education. Another incident occurred in the southwestern region of Cyangugu in February 2008 (Plate 8) when an earthquake damaged four secondary schools, destroyed one primary school, and damaged 19 primary schools leading to hundreds of classrooms needing reconstruction or rehabilitation (UNICEF Rwanda, 2008a). Such a situation is easily avoidable given the material available for avoiding earthquake damage to schools (Arya, 1987; Kelman, 2007).

In January 2002, just across the border in the DRC where thousands of Rwandan refugees still reside in Goma, Mount Nyiragongo (15 km away) erupted yielding dozens of deaths and displacing most of the population. In January 2010, Mount Nyamulagira
(25 km from Goma) erupted, fortunately without casualties. In both cases, schooling was interrupted.

There are other risks to children’s and teachers’ health associated with occupying unsuitable environments such as over-crowded, poorly ventilated, poorly lit, and damp
classrooms, along with minimal availability of latrines and hand washing facilities. Safety issues also arise in terms of the occupants’ ability to leave the school in case of an incident, because emergency escape routes and escape procedures are usually substandard. The overall security of the school grounds is essential for preventing
undesirables entering the school environment, which should be a “safe space” and known to be a “safe space”, but security measures and clearly delineated boundaries are usually absent. These issues highlight the importance of placing safer schools at the forefront of school policies to ensure the safety of learners, teachers, and other school staff and to ensure the continuity of quality education.
School construction programmes in Rwanda

In recent years, as the country has enjoyed increasing political stability, increased contributions from development partners have supported the construction of new classrooms. The designs deploy a concrete frame structure with infill brick or block together with steel window frames and durable steel trusses. These new school facilities have sanitary provisions and outdoor recreational spaces.

Typically, the infrastructure quality depends on the human and financial resources and capacities available at each institution for managing such construction projects. Rwanda is now constructing or rehabilitating an estimated 2,000-3,000 primary and secondary school class rooms per annum through the joint effort of the government, UN agencies, international and local NGOs, faith-based organisations (namely churches), and local communities.

Following the abolishment of school fees and the start of the nine-year basic education policy in 2006, primary school net enrolment rates increased to 94 percent in 2008, indicating the progress and commitment to the global efforts towards obtaining universal primary education by 2015. Rwanda has committed to these international goals and targets, including “Education for all” (UNESCO, 2004; WCEA, 1990; WEF, 2000), the “Millennium development goals” (UN, 2000), and “The new partnership for Africa’s development” (NEPAD, 2001).

The challenges are now to raise retention and attainment levels and to increase pupils’ enrolment in Rwanda’s nine-year basic education, which covers primary and
Tronc Commun (lower secondary) education. The Ministry of Education, together with its development partners, has acknowledged the importance of the quality of the physical learning environment and its impact on educational outcomes. Thus, in 2009, the Ministry of Education embarked on a national programme to construct 3,100 new classrooms for lower secondary schools.

Within this context, UNICEF Rwanda decided to support the Ministry of Education to lead and coordinate the drafting of “The national child-friendly schools infrastructure standards and guidelines for Primary and Tronc Commun”. UNICEF offered technical assistance to the government through the secondment of an international schools infrastructure consultant to the Ministry of Education, by supporting and giving guidance to child-friendly policies, and by supplying budget support for the consultation process. The in-house UNICEF Rwanda construction specialist supported the process by retaining the role of lead partner throughout the entire process.

**Writing standards with access and quality in mind**

When setting out to define new national standards, an important underlying dilemma was how to achieve a balance between access (quantity) and quality. Much information is available on good practice from around the globe for school infrastructure (Eastern Cape Department of Education, 2005; Leathes, 2009; Petal, 2008; Theunynck, 2002; UNICEF, 2009; UNICEF and the Ministry of Education Iraq, 2006; UNICEF and the Ministry of Education Thailand, 2008); however, standards, good practice, lessons learnt, and guidelines from other parts of the world must be adapted to each specific country context to become appropriate, relevant and, most importantly, practically achievable by the country in the near future. The aim should be for meeting standards that are as high as possible, but if the standards for one school are set at a very high level, then fewer funds and resources will be available for facilities elsewhere. Conversely, if the standards are set too low, then that would not contribute towards safe and quality education. As well, perhaps reconstruction or rehabilitation would be needed sooner, thereby not gaining the maximum out of the capital investment.

Consequently, it is imperative to undergo a full and effective consultation process where the level of acceptable standards can be discussed and agreed. That means eliminating any favouritism towards specific groups or regions. In some situations, having an external international consultant facilitating the process, bringing in lessons from outside, helps to open up minds and to erase certain in-country favouritisms.

**Child-friendly schools infrastructure standards and guidelines**

As Rwanda continues to develop at a rapid rate, increasing the safety and quality of school infrastructure and the education process must be included. Consequently, Rwanda’s Ministry of Education has prepared the document “Child-friendly schools infrastructure standards and guidelines”. This document has been developed “To improve access to education and to increase the quality of educational facilities in an equitable manner.”

Through this document, the Ministry of Education states the minimum standards, as a “Must” and simultaneously offers best practice guidelines through the use of terminologies such as “Should” and “May”:

- **Must.** States the minimum requirement and its quality.
- **Should.** Gives guidance on spaces and quality that is encouraged and which is in-line with best practice.
May. Gives good practice guidance on spaces and qualities identified as being beneficial if resources are available.

The document is organised in three sections.

**Standards framework**

This section describes the policy context in which the document exists, makes connections with existing legislation such as “The Rwanda Education Quality Standards”, explains the concept of the child friendly schools approach developed by UNICEF, and references anticipated legislation such as the “Rwanda Building Control Regulations” and the “Urban Development and Building Act” which was being developed in parallel at the time of drafting by the Ministry of Infrastructure.

**Planning**

This section gives planning guidance for schools infrastructure, including issues such as categorising existing facilities with a quick check list, site selection, disaster risk reduction strategies, energy strategies, appropriate technology and community involvement.

**Standards**

This section states the four national standards:

1. **Standard A** “A school must have appropriate, sufficient and secure buildings”:
   - schedule of accommodation;
   - spatial qualities; and
   - safe and secure buildings.

2. **Standard B** “A school must be a healthy, clean, secure and learner protecting environment”:
   - water;
   - sanitation facilities (toilet and hygiene);
   - environmental and waste management; and
   - secure and learner protecting environment.

3. **Standard C** “A school must have a child-friendly, barrier-free environment which promotes inclusive access and equal rights of every child”:
   - child-friendly environment;
   - barrier-free environment; and
   - equal access.

4. **Standard D** “A school must have adequate and appropriate equipment that supports the level of education”:
   - furniture; and
   - equipment list.

Each of these standards is stated in a non-technical manner in order to harmonize a simple understanding of the core issues involved in school infrastructure across all
those involved in the process. In this way, all those using the document start with the “soft” aspects, outlining reasons why we have standards. That is followed by precise practical guidelines within sub-categories to guide the users on how to achieve these standards through the design of the “hard” physical elements. This approach proved to be successful for organising an infrastructure standard document, by enabling everyone involved to have the same understanding from the same starting point and by contributing to facilitating productive working relationships.

For example, Standard B states: “A school must be a healthy, clean, secure and learner protecting environment.” The document then gives practical guidance into how to achieve this standard with definite quantities. Within this standard, it explains the importance of a healthy and clean environment and gives practical requirements on quality and quantity of water, sanitation, waste and environmental management. For example, considering quantity of water, full-time pupils with lunch at school require 2 l per pupil per day; full-time pupils with lunch at home require 1 l per pupil per day; and boarding pupils require 2.5-3.0 l per pupil per day. The document progresses to give guidance on how the infrastructure can create a “Secure and learner protecting environment” by the use of fences and passive surveillance designed into the school grounds.

Research, consultation, drafting, and presentations
The process here is presented as the series of steps that were followed:

1. **Research stage.** Many good practice guidelines for school infrastructure are available from around the globe (Eastern Cape Department of Education, 2005; Leathes, 2009; Petal, 2008; Theunynck, 2002; UNICEF, 2009; UNICEF and the Ministry of Education Iraq, 2006; UNICEF and the Ministry of Education Thailand, 2008). Thus, the process started with researching the different categories of documents:
   - **Study of existing school designs in Rwanda.** Rwanda has been undergoing the process of building up schools since the end of the genocide in 1994, with support through a sequence of major school building programmes from the World Bank, African Development Bank, Belgian Technical Cooperation, and UNICEF. Thus, it was important to learn from past construction project designs and to interview key personnel who were involved in these projects in order to build upon the strengths and to improve on the challenges.
   - **Comprehension of the national building regulations/code.** Rwanda at the time of writing the school standards was simultaneously undergoing the drafting of their building code, thus the Ministry of Education team worked closely with the Ministry of Infrastructure to anticipate these regulations so that they could fit harmoniously when both documents were completed.
   - **Study of international building regulations.** Rwanda’s Ministry of Infrastructure took part of the building regulations from the UK as a starting point (DfES, 2003, 2004, 2006; DETR, 2000) and therefore the educational standards also commenced with the UK building regulations and guidelines. The lessons learnt and the debate originating from a more developed country was important for determining which knowledge was appropriate to be transferred for Rwanda’s context and what components were missing.
• **Study of UNICEF guidelines and manuals.** That ensured gaining best practice guidance on the child friendly school concepts of child centred learning environments and the education philosophy.

• **Study of international standards.** It was important for the national standards to conform to international standards such as INEE (2006) and Sphere (2004) while harnessing knowledge from other guidance notes for safer school construction such as Hertz *et al.* (2009).

(2) **Consultation stages.** In order to gain the best Rwanda-specific technical knowledge and to set the level of acceptable standards, the Ministry of Education team from the Department of Schools Infrastructure undertook a consultation process, thereby also supporting buy-in:

• **Site visits and user group consultation.** The team visited a range of schools: old, new, private, and public across the country. The team also held one-on-one interviews with head teachers, carried out workshops with staff, and organized sessions with children (e.g. “Let our children teach us!” from Wisner, 2006) to gain their views and concerns about the condition of their school infrastructure.

• **Working side by side with Ministry of Education engineers.** Working jointly with the Ministry of Education staff ensured that their immense working knowledge and experience of each region was tapped into.

• **Expert working groups.** Working group sessions were organized for each standard (Standards A, B, C, and D) and experts were invited from government departments, national, and international organizations such as MINEDUC, MININFRA, UNICEF, UNDP, BCT, ADRA, CARE, CITT, KIST, KIE, DIFID, JICA, Electro-gas, Handicap International, Rheinland-Pfalz Rwanda, and Right to Play. These half-day workshops were hosted at the ministry and typically involved eight to 12 participants.

• **Key informant interviews.** It was not always possible to arrange for all experts and specialists to be in one room, so one-on-one interviews were carried out with key personnel such as directors within the Ministry and engineers from international organisations.

• **Regional and national consultations.** Workshops were organized in each region where a draft document was presented for comment and verification. Representatives such as district education officers, infrastructure officers, head teachers, and parents consisting of a total of 218 participants were involved in giving feedback on the standards.

• **Presentations to the ministry.** Gaining the policy makers’ commitments and agreements has been a key to the rapid adoption of the standards. Simple and accurate presentations were made to the Ministry of Education’s senior management committee. In these meetings, it was important to highlight that key stakeholders were consulted throughout the process.

Through this interactive process, the document gained increased accuracy, usefulness, and relevance. After a few sessions, it accumulated momentum and acceptance as results became visible. The manner in which the team worked became essential in
order to gain buy-in. It was important for the Ministry of Education team to be led by the director of school construction together with the international schools infrastructure consultant directing the process.

**Principal challenges**

One principal challenge in Rwanda, and in other neighbouring countries, is the lack of professional capacity to design and engineer a building to an acceptable level, even with the standards and guidelines. Through the process of finalising the standards, need became apparent for a sample school design to be incorporated as an annex to the standards. The technical drawings of this sample design and specifications had to be in accordance with the new standards and best practice guidelines gained through the consultation period.

These “Ministry of Education sample drawings” were developed through an internal workshop with ministry engineers. They were finalised through the support from UNICEF’s Rwanda construction unit. Including these technical drawings has been an important practical step towards accommodating the specific challenges in implementing the new standards. As part of Rwanda’s commitment to building up its human capacity, using these standards will train engineers and architects, thereby increasing their skills in designing individual schools. The new sample design drawings have already started to be adopted for the construction of 3,100 new classrooms for 2009-2010.

Another challenge was retaining the political interest to complete this task at the ministerial level. Every ministerial director is always incredibly busy, but the work here needed support from the highest level. Persistent lobbying was needed to gain permission for carrying out the regional and national consultations. Keeping this agenda at the forefront of ministry staff’s attention ensured that progress could be made. This meant continuing to give presentations and continually knocking on doors in the Ministry while keeping external interests alive by informing of progress made and by continuing to gain inputs and contributions from those with an interest in the process.

**Implementation and evaluation**

In August 2009, the “Child-friendly schools infrastructure standards 2009” was adopted by the Ministry of Education as a national standard, within ten months of initiating the process. All permanent public and private schools in Rwanda must adhere to these standards and guidelines. This document has been distributed to districts and is being used during new construction and rehabilitation of schools. In the recently published Rwanda Building Control Regulations by the Ministry of Infrastructure, the “Child-friendly schools infrastructure standards and guidelines” are referred to and are considered to be part of the national building control regulations.

School structures are now becoming more resilient to normal and extreme loadings, as the structural elements have been revised and fine-tuned by using durable material and have been designed considering earthquakes, strong winds, and rain. In terms of the quality and safety of school spaces, the schools include a secondary emergency exit, more window openings for light, better ventilation, and privacy measures by separating boys’ and girls’ toilet blocks. The new standards also promote inclusive education by accommodating people with disabilities through the provision of toilets for people with disabilities and access ramps, together with omitting a teachers’ platform to allow free wheelchair movement within the classroom (Plate 9).
Continuing this momentum and evaluating progress on constructing school infrastructure compliant to the new standards is a long-term challenge. Rwanda has severe underdevelopment problems, limited resources, and limited technical capacity. Even with the policy makers’ impressive commitment, such as in the Ministry of Education, they have only limited time and resources for monitoring.

Implementing the national school infrastructure upgrade programme in order to provide the free nine-year education programme to all children requires accurate data to prioritise, to make an informed implementation strategy, and to monitor and evaluate progress. Examples of data needed are damage to schools, security incidents on school property, truancy rates, budgets verified to have been spent on appropriate tasks, and the number of pupils completing the nine-year programme. Currently, such data are not available nationally, so metrics for progress cannot be compared over time or regionally. One such task is training inspectors to monitor the implementation of the 2009 national building code which is now in effect. That will contribute to showing that transparent and equitable planning (Beynon, 1997) and implementation can be achieved.

Monitoring and evaluation work is under development. A tool tailored to the standards is being formulated, the “School Environment Assessment Tool” (SEAT) (Grafweg, 2009). This tool in combination with the country’s “Education Management Information System” will contribute to selecting sites equitably and transparently while providing the data over space and time needed for monitoring progress and evaluating goals, such as the quality of construction and education.

The process in Rwanda was relatively expensive in terms of time, costs, and labour. The cost associated with creating this approved document included the cost of an international schools infrastructure consultant for six months, expenses for hosting consultations, costs for the dissemination of drafts through the regions, and the time and effort required to gain and maintain buy-in from the Ministry of Education. Despite the cost, the impact for the government, the country, the communities, the educators, and the pupils has been immense, being felt immediately yet also being long lasting.

Wider development implications also emerge. By acquiring a set of comprehensive standards in one sector, the country has cultivated confidence and pride in a national development programme. In August 2009, the standards were approved.

Plate 9. Internal view of a new standard classroom built in January 2010

Notes: Examples of improvements are no teacher’s platform, a cupboard, a blackboard suiting the height of children, improved light and ventilation, and a ceiling to prevent noise transmission when rain hits roof
Source: L. Ginoulhiac, UNICEF
By February 2010, 3,100 new classrooms had been constructed to the new standards across the country (Plate 10).

Lessons and future work

This case study has significance emerging from the document in terms of content and organisation as well as the lessons from the process of producing and implementing the document. Three principal lessons are presented here.

First, plenty of information is available on good practice from around the globe for school infrastructure and safety. That material should be reviewed, but it must be contextualised for every different situation. One of the main limitations is what might be achievable in practical terms within each context, especially in the near future to ensure that momentum can be built for the long term.

The second lesson is that this document is organised uniquely in comparison to many other examples (Eastern Cape Department of Education, 2005; UNICEF, 2009; UNICEF and the Ministry of Education Iraq, 2006; UNICEF and the Ministry of Education Thailand, 2008), as it goes from “soft” to “hard” issues. The simple incremental approach using “must”, “should”, and “may” is also relatively unique, and demonstrated its value in engaging people in the process with tangible results, without the full task appearing to be overwhelming.

Third, the consultation process, organised at many different levels on the terms of the people who would be using document, is standard in development work, but is reaffirmed here as being vital. It gained the best technical inputs from those involved and ensured acceptance and commitment to the process and to the final product.

Three main areas are proposed for future work to continue supporting the work presented here.

First, a strong need exists to gather information and data specific to school infrastructure so that it can be compiled at a national level and used for transparent and equitable prioritization for work along with monitoring and evaluating the programme over the long-term. Tools such as the “SEAT” have been developed as a draft for Rwanda, but testing, refinement, and implementation have not been completed. These tools also require political will to be implemented meaning that any further work must include developing and maintaining capacity within Rwanda’s governance structures. Without adequate monitoring and evaluation of the work presented here, it will be difficult to indicate specific successes and improvements to be considered.
The second area for further work is to extend these standards and the activities beyond primary and Tronc Commun schools. Other education levels such as early childhood development (Vargas-Barón and Williams, 2008), upper secondary education, tertiary education (Yemaiel, 2006), teacher training colleges, and technical schools also require a similar process and similar standards.

Third, these standards require dissemination and testing beyond Rwanda. Some of that work has been started. In late 2009, Burundi’s Minister of Education and other Members of Parliament came to Rwanda to visit schools. They then requested support in implementing a similar program in their country. The material has also been distributed by UNICEF to the Ministry of Education in the DRC. Yet resources are not available for proper follow-up with Burundi or DRC.

As well, since each location must contextualize the document for themselves, a comparative study would be powerful to indicate what parts are transferable and what parts require special attention when applied elsewhere. In addition to this paper, dissemination includes a publication from the Rwanda Ministry of Education (2009) to make the material more available, both online and in hard copy. In disseminating the material, language has to be factored in for accessibility; for example, translating the material in French for Burundi, and DRC, but also considering local dialects along with other regional languages such as Swahili and Portuguese.

Through the work presented here, it is hoped that education throughout Rwanda will become more accessible, safer, and of higher quality, preparing the next generation for creating a better future for their country and for themselves. Rwanda’s journey can be emulated elsewhere, while being appropriately contextualized, to teach others about Rwanda’s experience and for Rwanda to learn from others.

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