The Challenges of Developing Appropriate School Environments in Rwanda
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submitted in partial fulfilment of the MA in
Development and Emergency Practice
submitted: August 2010
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Appendix A

Appendix B
This paper explores the challenges of improving national educational infrastructures in Rwanda. It aims to give insights of my personal experience in working with the government of Rwanda in offering specifically tailored and concrete propositions such as the National school infrastructure standards and guidelines and a School Environment Assessment Tool (SEAT). The paper discusses questions such as: How can school environments conform to the global and national education commitments of providing safe, inclusive and child-friendly learning environments? How does safe, inclusive and child-friendliness translate into physical learning spaces? How can the quality physical learning environments be formulated, implemented and guaranteed?

Methodology

This paper studies the historic and global context of national school infrastructure programmes to contextualise the challenges Rwanda is facing. It draws parallels with historic moments that have defined specific educational infrastructure guidelines in other nations and studies their relevance in respect to Rwanda. This historic contextualisation is followed by an outline of global educational initiatives and their influence on the Rwandese situation.

A comprehensive analysis of the recent historic events and economical situation of Rwanda is made to understand the challenges that the current educational policies and strategies, including their school infrastructure, are facing.

A field study of the current state of the school environments in Rwanda has been conducted which included a wide range of consultations with different stakeholders, such as the school communities, the district and central government and NGOs; followed by an analysis of the current implementation plans and strategies and their shortcomings.

The paper reflects upon my first hand experience in developing national school infrastructure standards and guidelines and in addition I have worked further with UNICEF Rwanda and the construction unit in Ministry of Education Rwanda in developing a School Environment Assessment Tool (SEAT). This paper also reflects upon the SEAT
as it was piloted in the eastern province of the Democratic Republic of Congo in Jan 2010 as part of an evaluation of UNICEF’s construction activity in the region and subsequently presented at an UNICEF eastern Africa construction forum as an adaptable template for comment and review from other nations.

**Introduction**

In 2007, 72 million children globally were not attending school and 70% of these children lived in South Asia, West Asia, and sub-Saharan Africa. The deficit in sub-Saharan Africa remains particularly large where one quarter of primary school aged children are not attending school, accounting for nearly 45% of the global out-of-school population.¹

On the whole, progress is being made worldwide towards universal primary education and the out-of-school numbers are falling with more children completing primary school education, yet the progress is slowing down, and if the current trends continue, 56 million children could still be without a primary school education in 2015, falling far short of the Millennium Development Goal 2 (MDG) of universal primary education.

*The Education for All (EFA) report 2010 states: “Denying children an opportunity to put even a first step on the education ladder sets them on a course for a lifetime of disadvantage. It violates their basic human right to an education. It also wastes a precious national resource and potential driver of economic growth and poverty reduction.”*

The Millennium Development Goal 2 (MDG 2) – Sets out a target for a global net enrolment rate – this has increased from 84% in 1999 to 90% in 2008², though the prevailing trend indicates a worrying slowing down of the progress of getting all children into school indicating that the MDG target of universal primary school enrolment by 2015 is unlikely to be achieved. Sub-Saharan Africa is the region where enrolment still

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¹ Education for All global monitoring report 2010, Reaching the marginal UNESCO, p.68
² MDG report 2010
remains the lowest, even though it has achieved the largest increase from 58 per cent to 76 per cent between 1999 and 2008.

Getting children into school is a vital first step; however for the students to receive the full benefits of education, they must continue to attend classes. 100% enrolment rate does not inevitably lead to universal primary education, for which every child has to complete a full course of primary education. In approximately half the countries in sub-Saharan Africa, more than 30% of primary-school students drop out before reaching the final grade. A substantial increase in retention is required to reach the target 2 of the Millennium Development Goal 2 within the next five years (by 2015). The progress in attendance is far outstripping the progress in keeping children in school in addition to increasing their achievements levels. This development is been reported by most assessments calling for a shift in focus from a quantitative approach towards qualitative emphasis. Therefore to promote better quality education more emphasis towards promoting higher retention and achievement levels by reducing drop-out rates and by promoting inclusive education is needed. Within this discourse the provision of adequate school infrastructure takes on a key position to facilitate better quality education to take place. An accessible, safe, healthy, inclusive and child-friendly school environment is an essential component to support every child’s learning abilities and overall well-being.

Within this context this paper aims to discuss the provision of child-friendly national school infrastructures in Rwanda and the challenges it faces. Rwanda has been described as ‘a success story’ within sub-Saharan Africa, where 15 years after the devastation of the genocide and the civil war in 1994 primary school net enrolment rates have increased substantially from 1998 to 2008 from 69.9% to 94.2%. However, it must be noted that the retention rate remained low at 51% in 2004 and drop-out rates remain high, causing achievements to be poor. Building up an adequate school

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3 MDG report 2010
4 School infrastructure in this context is primary and Tronc Commun level
5 Rwanda Ministry of education, (MINEDUC) data
infrastructure within the resource scarce environment in Rwanda must take into account its severe underdevelopment problems, limited human and financial resources, and limited technical capacity.

Through this paper I would like to present how a ‘balancing act’ has informed an approach which encourages incremental progress rather than condemn sub-standard infrastructures.

In the first chapter the paper aims to give a brief historic overview of when state provision of national school infrastructure emerged for the first time and how the concept of guidelines for the physical environment changed according to social political climate. Chapter two gives an overview of the current global frameworks and targets in relation to universal primary schooling and their influence on the Rwandese context. A country profile of Rwanda follows in chapter three. Chapter four focuses on Rwanda’s educational infrastructure, its current conditions and shortcomings. It studies the current education polices and construction strategies and the challenges to provide adequate school environments to promote quality primary education for all children. Chapter five describes the process of developing the national child-friendly schools standards and guidelines and its Rwanda specific structure and typology. Chapter six presents the Schools Environmental Assessment Tool (SEAT), its context and structure. The last chapter gives a reflection on testing the SEAT and a general conclusion.
Chapter A: Historic Context

Historic development

This chapter draws upon the historic overview of the development of mass education and its required schooling facilities that emerged in response to the need of educating generations of children. Three key historic moments relevant to current Rwanda are studied in detail which illustrates how schools and learning environments have changed over time to address changing requirements and aspirations of educational policies and theories. Within the architectural profession the close interrelationship between pedagogy and learning spaces is seen as the fundamental concept of school planning. School typologies have changed throughout history according to the aspirations of the pedagogical theory and policy of the time; identifying schools as ‘three dimensional curriculums’.

A 1.1 Beginning of mass education in Britain

“....Education, education, education” were the priorities in Tony Blair’s speech when Labour came into government in the UK in 1994 emphasising the importance of education in our current society (politics and economy). It is one of the primary concerns of a modern state to educate their young generations in order to become part of a well educated, modern and productive society. This concern is not new and places its roots in the 18th century when industrialisation took its hold in Britain, forcing the predominately rural population into the urban factories and workshops. From this moment on a population with basic education - the ability to read, write and calculate - became an indispensable asset to the national economical development. The construction of thousands of schools to facilitate this task was required and the main question of which spatial facilities these school should have became an important

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6 A design Manual, Schools and Kindergartens, Mark Dudek, 2008
7 “Ask me my three main priorities for government and I tell you education, education, and education.” Tony Blair, 1997
8 UK Elementary Education Act, 1870 made education compulsory for children between the ages of 6 to 11
debate. The construction of schools throughout the nation was firstly an immense capital investment and secondly needed to support the national educational policies to emphasise a strong state.

The typical school constructed during this time for compulsory mass education emphasised the need for hygiene and discipline to counteract the unhygienic and overcrowded living conditions in the urban ‘slums’ of the rapidly growing cities, such as London. Discipline and order were the predominant educational aims to supply a productive and obedient workforce. Thus the typical urban Victorian school building reflected this with its imposing multi-storey brick building with large openable windows and high ceilings. It was designed to allow maximum natural light and fresh air into the large square classrooms. The schools offered separate sanitation facilities for girls and boys, and outdoor play and assembly spaces to counteract the spread of diseases and overcrowded urban living conditions.

It was also the time when the concept of age separated classes became a national norm; the individual classroom became the most important ‘core’ space of any school building. This principle of ‘core learning space’ – a classroom with a fixed number of student per teacher- remains until today one of the central components of a learning environment and indicator of the school facility’s adequacy.

These spatial components, so natural to our present understanding of a school environment, have their roots in the work and research of the architect and surveyor E.R. Robson, who was one of the first to develop coherent spatial standards for school buildings. Robson travelled widely to research school environments all around the world to develop a coherent idea as to how architecture and educational theory should be integrated to create school buildings appropriate for its specific function. In 1874 E.R. Robson published the comprehensive book: *School architecture, Practical Remarks on the Planning Designing, Building and Furnishing of School Houses*. It gave guidance and best practises on issues such as ventilation and natural lighting, classroom layout
and sizes. It is fascinating to know that these guidelines are the basis from which our current school building guidelines and standards have developed.9

Many of the urban primary school buildings constructed during Victorian times remain in use today. They have been modernised and extended with sanitation facilities, new play equipment and electrical installation, yet the durable brick buildings are still in use. This is a common scenario in a variety of nations. The predominate reason to reassess and to reconstruct a nations school infrastructure is commonly due the to physical destruction of war or natural disaster and in special situations of a socio-political nature so dramatic that the public buildings associated with the previous political system become an unacceptable reminder.

A 1.2 Shift in educational values in Germany after WWII

A moment in history when the socio-political environment affected national school infrastructure can be seen in the case of Germany after the Second World War where most of the public infrastructure was destroyed or stood as an unwanted reminder of the national socialistic era and their anti-Semitic policies. The German society wanted a clear break from their shameful past and a tremendous effort was made to rebuild the country according to transparent and democratic principles, which were believed to prevent the nation to ever fall back into Fascism. “Never again” became the overarching motto. This shift had a dramatic effect on almost all public buildings and spaces, which are one of the most prominent manifestations of the state and their political agenda. Almost the entire national school infrastructure was remodelled according to modernistic principles of transparency and democracy; to educate the individual child as an independent decision-maker became a key aspect of educational policy. The objective was to create a society based on democratic principles.

Modern architects such as Hans Sharon developed a prototype for a new primary school in Darmstadt10, which is still today presented as a prototype for modernist school

9  UK building Bulletins 98
10  A design Manual, Schools and Kindergartens, Mark Dudek, 2008
planning. It is a small intricately planned building that has the growing-up processes of every child as its central concept. The scale of the various spaces changes and adapts with the growing child. It evolves from small intimate spaces with private outdoor play areas, towards larger and more complex lay-outs for older children that are open towards the surrounding environment. It facilitates different spatial experiences according to the age and stages of independence of the child inviting them to explore their surroundings according to their own abilities and preferences.

**A 1.3 UK Building Schools for the Future (BSF) programme 2004-2010**

With the emergence of globalisation and altered expectations towards the younger generation to live and work in a global market, British policy makers believed that the national secondary school infrastructure was no longer appropriate to educate the younger generations for the requirements of the 21st century. Most schools had not been modernised for 40 years leaving them in a dilapidated and rundown condition.

In 2004, England’s Labour government launched the Building Schools for the Future (BSF) programme. It was the biggest-ever school buildings investment programme in England, and in fact the largest and most ambitious scheme of its kind in the world. The aim was to rebuild or renew nearly every secondary school in England and create ‘world-class’ schools worth £45billion. It was to see every state secondary school in England – around 3,500 in total – rebuilt or remodelled. The scale of the programme aimed to move from an endemic piecemeal way of rebuilding and renewal to a strategic approach to funding, design, procurement and management of the national school infrastructure. The overarching concept was not about constructing school facilities, but about ‘transforming education to rebuild communities’. Building Schools for the Future placed research based education and sustainability at the heart of the schools infrastructure agenda and, together with investing in information technology (ICT), the **aim was to create 21st century places for life-long learning**.

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11 UK Commission for Architecture and Built Environment (CABE) data 2009
Just as BSF has been a major national financial investment, it has also been a sphere for thought with ‘educational transformation’ at its centre; the question was not how to bring our buildings up to standard, but how to create learning environments for the next generations of learners in the 21st century?

Furthermore, the programme sought to propel the way that communities valued their schools by changing the perception of ‘the school’ from a place for formal state schooling, predominately concerned with academic attainment, into a place concerned with overall life-education. The goal was to improve the lives of children (‘every child matters’) and their families – seeing schools as an important part of benefiting the social and economic well-being of communities.

This ambitious national investment programme began at a time of economic boom, while major regeneration efforts were underway across England. It relied to a large extent on major capital investment into rebuilding and refurbishing works tailored specifically to each individual school. However, in 2010, England is experiencing a deep recession and there is the need for significant public spending cuts. This led to the newly elected conservative government to abandon the programme and to direct the discussion of adequate school infrastructure towards the concept of standardised school facilities and the discharging of current school building space standards. A concept that was rejected by the previous government and the BSF programme, as it was believed that the circumstances of each school in their community is to a large extent unique, requiring specifically designed solutions within an overall spatial framework of guidelines.
Chapter B: Global Educational Initiatives

B 1.1 Global frameworks

The educational discourse of appropriate education for the 21st century is becoming increasingly a global discussion; equally pursued by resource rich countries – in human skill, capacity and finance - as well as resource poor countries. Yet the challenges they face are vastly different. Most developing nations are struggling to reach the Millennium Development Goal 2 of universal primary school education for all children in 2015.

B1.2 Millennium Development Goals (MDGs)

The Millennium Development Goals 2 has three indicators: firstly net enrolment rate in primary school, secondly proportion of pupils starting grade 1 who reach grade 5 , and thirdly literacy rate of 15 to 24 year-olds. These indicators address the three main educational aspects of enrolment, retention and attenuation.

The enrolment rate for primary education for sub-Saharan Africa -(home for many of the poorest nations including Rwanda)- has reached 76% in 2008 and the literacy rate is at 77% for children and young adults of the age of 15 to 24. The region is home to the largest number of out-of-school children where one quarter of all school age children do not attend school which inevitably affects the completion rate of a full course of primary schooling. In half the countries in sub-Saharan Africa, more than 30% of primary-school students drop out before reaching the final grade.

Yet many developing nations in the region are closing the gap to achieve 100% primary school enrolment. Rwanda is predicted to reach full primary school enrolment in 2010. However, retention rates are far behind enrolment rate and if the current trend continues the MGD goal 2 of universal primary schooling will be missed.

12 Millennium Development Goal status report, Rwanda, 2003, p.15
13 Millennium Development Goal report 2010, UNDP
The MDG status report for Rwanda in 2010 states: “Drop-out rates and repetition rates are still high at 14.2% and 31.8% respectively. Both these rates are generally higher for girls and the performance rate at the end of the primary cycle of education is higher for boys. In 2001 only 77% of the children starting grade 1 reached grade 5. These figures underscore the present low quality of primary education”\textsuperscript{14}

The report therefore declares the increase of quality for primary education a priority for the coming years. It highlights several key challenges which are central to strengthen the educational quality: the training of skilled teachers and qualified personnel in central and regional administration, who have the skill to undertake planning; replacing and rehabilitating school infrastructure, furniture, equipment, and educational materials to adequate standards; increasing the authority and responsibility of the school community over the management of the school and increasing their decision-making powers; transforming the inspection process in a way that is participative and empowers teachers and school communities and providing an adequate supply of textbooks and relevant educational materials in schools.

**B1.3 Education for All (EFA) initiative**

The *Education for All* (EFA) is a global movement lead by UNESCO which sits alongside the MDG Goal 2 promoting education for all people irrespective of gender, disability, race and age. The Initiative was started in 1990 at the World Conference on *Education for All*, where representatives from 155 countries and 150 organizations pledged to provide education for all by the year 2000.\textsuperscript{15}

When in 2000 the Dakar *Education for All* forum was held, over 100 million children of primary school age remained out of school\textsuperscript{16} and over 880 million adults were still illiterate. The EFA assessment concluded that the quality of education was falling far

\textsuperscript{14} MDG status report 2003, Rwanda p.15  
\textsuperscript{15} www.unesco.org/education/efa/ed_for_all/dakfram_eng.shtml  
\textsuperscript{16} www.unesco.org/education/efa/ed_for_all/dakfram_eng.shtml
short of the required standard. Donors, governments and other stakeholders agreed that more serious commitment and accelerated progress was needed to achieve education for all. This commitment was set out in the 6 EFA goals: ensuring free universal primary education, gender equality in education, expanding early childhood care, reducing adult illiteracy, promoting life skill development and ensuring quality education to all educational levels.

Ten years on, the challenges are still the same. The education for all annual monitoring report 2010 reiterates the need to improve the quality of education and to increase retention and attenuation rates as priorities. Between now and 2015, the number of new teachers and classrooms needed in sub-Saharan Africa alone equals the current teaching force and available classroom spaces in the region. The failure of most developing nations to ensure quality free primary education demonstrates the immense challenge it is for low income nations to mobilise the financial and human resources needed to master the complexities of setting up quality primary schooling. In addition to plan, construct, manage and maintain a functioning education system with adequate schooling environments numerous aspects of poverty require additional attention. The report states that children drop out of school for a variety of economical and cultural reasons, including cost, cultural barriers and marginalisation. Girls and children with disabilities are the most likely to not complete a full course of primary education. So are children from rural areas, who are twice as likely as urban children to miss out on education.

Quote: ‘Many countries are getting closer to bridge the gap towards 100% enrolment rate into primary schooling, yet retention rates are far behind enrolment rates...... Progress in school participation continues to outstrip progress in learning achievement, pointing to a widening gap between quantitative and qualitative indicators of progress.’

MDG report 2010
**B 1.4 UNICEF Child-friendly principles**

In line with the global movement towards *education for all* and in acknowledgement of the difficulties of achieving their goals stand the UNICEF’s child-friendly schools guidelines. A general framework of best practises and guidance to promote quality child centred education for all children. The Child-Friendly Schools (CFS) approach recognizes that each child is a vital member of society, and that every child’s education is the key to the future of every society’s development.

The child-friendly framework places the child at the centre of a holistic learning and teaching environment defined by its six key dimensions aiming to create an enabling physical environment suitable for every child’s development. The six key aspects are:

1. Inclusive of children; Respects diversity, guarantees opportunities and meets the needs of children (based on vulnerabilities, social class, and ability level).

2. Secure and protective; Helps to defend children from abuse and aggression; promotes psycho-socio-emotional wellbeing of teachers and learners.

3. Healthy; Assure proper hygienic conditions by: adequate water and sanitation facilities; implementation of healthy practices.

4. Effective with children; Uphold good teaching and learning processes; define quality learning outcomes; provides approved content, materials and resources; support teachers’ capacity, commitment, income and their recognition of child rights.

5. Sensitive to gender; Advocate gender equality in enrolment and success; guarantees girl-friendly facilities, environment and teaching; promote respect for other’s rights and dignity.

6. Involved with communities. Works to strengthen families; helps stakeholders establish collaborative relationships; works with other actors and duty-bearers to fulfil

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18 Draft UNICEF Child friendly Schools Guidelines for Africa 2009
children’s rights.

UNICEF is one of the main donor and implementation organisations of school construction throughout Africa. A substantial percentage of their overall budget is currently spent on construction of infrastructure making the child-friendly approach an important aspect of ensuring schools with focus on child-friendly principles. UNICEF is currently implementing major construction programmes in Angola, Madagascar, Malawi, Democratic Republic of Congo and Rwanda.19

The complex picture of challenges described above reflects the concerns and challenges experienced in Rwanda. Even though Rwanda is often described as a good example of a sub-Saharan nation making increasing progress in achieving universal primary education, the challenges remain substantial.

Chapter C: Country profile Rwanda

C 1.1 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, it had an extremely young population of which 57% of the population was under the age of 15 and 84% of the population was under the age of 30. Only 4% of the population was 60 or older, partly due to the 1994 genocide (see 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. A large percentage of young population requires education and school infrastructure which the current national education system is not able to provide adequately. In addition, 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, emphasising the urgent need for education to open up alternative livelihoods opportunities.
C 1.2 Rwanda historic context

Rwanda has been and still is a subsistence farming society with large family clans cultivating the often difficult accessible mountainous areas. During the colonial period a large percentage of illiteracy was widespread and formal schooling was predominately church based or sporadic within the rural areas. Existing state education was giving clear preference to the Tutsi population with the consequence that much of the Hutu population remained uneducated and illiterate. This situation changed dramatically when Rwanda became independent from Belgium in 1961 and the new Hutu government reversed the politics of exclusion promoting a politics that clearly favoured the Hutu population.

The tension brought about by the politics of exclusion culminated in the tragic events of the 1994 genocide where between 800,000 and 1 million Rwandans lost their lives20 within a very short time span of a few months. The genocide and the civil war that followed further decimated the population and destroyed almost all existing infrastructure in the country. Roads, water and electricity supply as well as all national infrastructures such as hospitals, health facilities and schools and their equipment were destroyed.

The survived population fled the ruined country and from the advancing RPF21 , creating an enormous refugee exodus to the neighbouring countries of the Republic of Congo, Tanzania, Burundi and Uganda, emptying the country almost completely of its population. During the same time the people fled out of Rwanda22 large numbers of earlier refugees, which had escaped from the anti-Tutsi government repatriated. These vast population movements into and out of the country created much chaos and unsettled a large proportion of the population from their original homes and livelihoods. Many Hutu families did not return to their original place of living in order to avoid

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20 Tutsi and moderate Hutus were targeted, but many other people lost their lives during this time
21 RPF, Rwandan Patriotic Front, led by the current president Paul Kagame
22 Mainly Hutus fled from the advancing RPF soldiers
prosecution, many Tutsi survivors did not return at all/migrated abroad or settled in the cities, and the earlier refugees returning from Tanzania and Uganda, who had often never lived in Rwanda, settled in the cities. Large numbers of refugees remained in refugee camps for up to several years and have since been slowly returning back into Rwanda. Still now after almost 16 years there are refugees returning. On my way to Kigali, I sat next to a young woman a the plane, who had barely escaped the genocide as a young girl and now returned to her family’s home in Kigali for the first time with much anxiety and mixed feeling.

The country has for the last 10 years been in the process of slowly rebuilding its national capacity and infrastructure, though the effects of the genocide and the civil war are still present in almost all aspects of society: Not only was the national infrastructure destroyed and need of rebuilding, the majority of educated and skilled people did not survive the genocide and war or migrated abroad, creating a vacuum of skill and capacity to face the task of rebuilding the country. Most of the Rwandese children did not attend school during and after the conflict, as teachers, teaching aides and schools were not attainable and the safety of the children was not certain. As a result a large percentage of children remained illiterate and without basic education.

C 1.3 Economic policies

Rwanda’s economy depends primarily on subsistence agriculture, with an annual gross domestic product (GDP) per capita of $280 and nearly 90% of the population engaged in agriculture as their primary occupation. 40% of GDP is derived directly from farming and other agricultural activity responsible for the majority of Rwanda’s export earnings, with coffee and tea the leading crops by value. Rwanda has a high level of underemployment and in 2000, 51.7% of the population was living under the 1$ poverty line and 83.7% under the 2$ per day threshold.24

23 World Development Indicators, www.worldbank.org
24 Un habitat global report on human settlements 2007
The Rwandan government states in its *Vision 2020 report* as a goal to achieve annual per capita GDP USD $900 by 2020, which implies a real growth rate of approximately 8% annually. Recently on the BBC world news website showed that Rwandan economy experienced a growth rate of 10% in 2008, but would not be able to sustain the growth in the coming years if it did not diversify its economy away from agriculture towards tourism, mining and service sectors. To facilitate and further encourage this economic shift a well educated population is essential. The Rwandan government has prioritised education as one of their primary focuses. It aims to develop into the regional service hub for East Africa (vision 2020) with a ‘knowledge-based economy’.

**Chapter D: Rwanda’s School Infrastructure**

**D 1.1 Education policy in Rwanda**

When a quarter of Rwanda’s 1994 population was killed or displaced (externally or internally) during 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 the capacity to govern and manage the substantial capital investment into new school construction needed to achieve the MDG target of universal primary/basic education. New policies and legislation such as the national building code, guidelines and standards for school infrastructure, special needs and girls’ education had to be formulated and developed to facilitate Rwanda’s current political strong emphasis on developing the country’s human capacity, aiming for a knowledge-based economy (see also 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 provision, improving girls’ and special needs education, developing science/technology, and constructing and rehabilitation of infrastructure. School infrastructure is a key component within

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25  Vision 2020 report
26  20.4% of national budget is allocated to education
the overall ambition to achieve the countries target for free 9 year basic education and can contribute to improve the quality of education, to provide safe “Education for all” (UNESCO, 2004; WCEA, 1990; WEF, 2000) by providing safe, healthy, child-friendly and easy accessible learning facilities. Better quality school environments add to reduce the pupil teacher ratio, encourage inclusive learning methods and create a safe and healthy environment, appropriate for all children to learn and prosper.

Current education policy sets out the conceptual framework for the new educational infrastructure by stating several key issues, such as: ensure inclusiveness; ensuring that no child is excluded from enjoying quality education including gender equality and the inclusion of orphans and other vulnerable groups.

A further key issue is the aim to increase overall retention by reducing double shifting of primary schools from 31% (2004) to 6% (2015), increasing primary completion rates from 51% (2004) to 112% (2015), reducing dropout rate from 14% (2004) to 2% (2015) and reduce student teacher ratios from 74 to 45. Reducing the student teacher ratio is one of the critical aspects to facilitate better quality education, as smaller classes encourage a better learning environment, with the teacher having more time per student. It also has a direct impact on the planning and design of the school infrastructure. Smaller classes require more individual well planned classrooms with adequate fittings.

However, it is important to acknowledge, that better quality and increased quantity of school infrastructure cannot be seen in isolation. As mentioned above the training of teachers, the provision of teaching equipment and aids are equally essential components. New and rehabilitated school environments are only one of the contributing factors within the overall ambition to provide free universal quality education. This paper places its emphasis on these ‘hard’ physical aspects of constructing school facilities. But it is central to the discussion about adequate school infrastructure not to be separated from ‘soft’ educational discourses, and other overall poverty reduction programmes.
The current Rwandese education system starts at pre-primary, kindergarten level, which is voluntary and only 1% of the children attend early learning facilities as these are few and far apart, distances are too great to be travelled by children at this age. Early learning programmes are not tuition free and in most case a luxury catering for the 1% of urban middle class children.

The compulsory state education commences with the 6 years of primary school, which concludes with a national test (P6). According to these grades the pupil has four options; enter into Tronc Commun and secondary school, which can lead further to upper secondary and university; enter into community school; enter into Technical and vocational education and training (TVET); or the final option is to start work.

Following the abolishment of school fees and the start of the nine-year basic education policy in 2006, primary school net enrolment rates increased substantially from 1998 (4 years after the genocide/war) to 2008 from 69.9% to 94.2% indicating the progress and commitment to the global efforts of 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 primary enrolment rate of boys and girls is fairly equal at 93.3% and 95.1% respectively. These very encouraging numbers could be misinterpreted that universal free primary education has been achieved. However, the challenge Rwanda’s education system faces is illustrated by the primary school retention rate, which drops to 52% indicating that a large percentage of children, especially girls do not complete 6 years of primary education. This high dropout rate stems from a variety of underlying and complex reasons:

Diagram of education structure in Rwanda

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D 1.2 Rwanda’s current education system

The current Rwandese education system starts at pre-primary, kindergarten level, which is voluntary and only 1% of the children attend early learning facilities as these are few and far apart, distances are too great to be travelled by children at this age. Early learning programmes are not tuition free and in most case a luxury catering for the 1% of urban middle class children.

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27 Ministry of Education of Rwanda 2007 statistics
Long travel distances to schools\textsuperscript{28}, unsafe and hazardous condition of school infrastructure, lack of sanitation facilities for girls, the inadequate training of teachers or lack of teaching staff, the need to contribute to the family income and child headed households,\textsuperscript{29} to list the most prominent factors.

Consequently, as the quote from the MDG 2007 report states the main focus is to improve the quality education: “The access to education has improved at all levels of the system, but quality and student learning out comes need greater attention” The removal of fees at primary and the provision of capitation grant to schools are enabling a greater number of children to attend primary school.\textsuperscript{30}(Education Strategy 2006-2015)

As a consequence of the low retention and attenuation rate secondary school enrolment rate drops even further, allowing only a very small percentage of pupils the opportunity of a higher education. Current education policy however focuses on the provision of 9\textsuperscript{year basic education} and therefore limited funds are allocated. MINEDUC\textsuperscript{30} target to increase upper secondary enrolment stipulates the construction of 185 new class rooms per year from 2007 increasing to 509 in 2015. In 2008 MINEDUC has allocated the construction of 80 classrooms.

Recent education policy changes place further pressure on the already inadequate school infrastructure by increasing the compulsory education from 6 to 9 years including the 3 years of lower secondary, Tronc Commun, into the free state education provision “9\textsuperscript{years basic education}”. This has major effects on the provision and organisation of the physical school infrastructure. The current enrolment rate to Tronc Commun is only 20\% and MINEDU target is to increase it to 69\%, requiring 663 new Tronc Commun class rooms per year from 2007 to 909 in 2015 as enrolment rates increase. MINEDUC planned to construct 438 class rooms in 2008.

\textsuperscript{28} Field report state that some pupils walk for 7Km to reach the school.
\textsuperscript{29} Due to early death of parents (AIDS).
\textsuperscript{30} Ministry of Education of Rwanda
Furthermore current Tronc Commun and Primary schools are not necessarily in the same location and fewer Tronc Commun schools are available, particularly facilities which conform to current teaching standards and include science laboratories and subject based classrooms. The new system envisages the primary schools for 9 year basic education programmes (including the Tronc Commun) within each community and a secondary school located centrally amongst several primary schools.

Many new schools/classrooms are required to firstly accommodate the increasing number of children enrolling and the population increase, secondly are adequate in standard to facilitate a safe and clean learning environment, and thirdly are located within safe walking distance from the villages and farms across the country. The recent policy change further contributes to the urgent need to increase the quantity of school environments, and rehabilitation of existing schools to be fit for safe learning activities.

### D 1.3 Current conditions of the physical school environments

The quality of and accessibility to school infrastructure varies immensely in Rwanda. Some rural classrooms accommodate up to 96 pupils per class\(^{31}\), as shown by a site visit to Musanze Northern Rwanda region in 2008. These schools have no electricity; and have no window glass. When it rains, the shutters must be closed and the lessons must continue in the darkness. The thin corrugated iron sheet roofing contributes to the stuffy and hot internal climate during sunny days and interrupts teaching due to noise. A school child complained that many pupils fall asleep during lessons due to the lack of ventilation and the overcrowded conditions in the classroom.\(^ {32}\) In most classrooms pupils have to share benches and tables of mismatched heights. There is no clear visibility of the teacher or blackboard and no possibility to meaningful interact with classmates in alternative learning methods other than ‘frontal teaching’ of pupils listening and repeating the teachers instructions. The existing classrooms are overcrowded to an extent that makes it impossible to move around the classroom, reach

\(^{31}\) MINEDUC statistics 2007 indicates that there are 2,150,430 primary pupils, 2,370 total numbers of schools and which gives an average of teacher to student ratio of 1:7

\(^{32}\) Pupil discussion during site visit of schools in Musanze in 2008
the blackboard or engage and interact with the other pupils during classes.

Many school buildings are community / self constructed using locally available materials, such as mud bamboo and/or thatch using non-durable and unsafe methods without the guidance of skilled workmen, construction experts or adhering to safe construction or space standards. It exposes the pupils and teachers to natural and manmade hazards and creates environments which are unsuitable for safe, child-friendly and learner-orientated occupation.

The region experiences numerous natural hazards such as earthquakes, volcanic eruptions, strong winds, and torrential rain, but few schools consider these hazards in their design/construction and operation. A recent example of nature affecting schools was strong winds in September 2008 hitting north-western Rwanda: 87 classrooms had damaged roofs and 10 classrooms collapsed (UNICEF Rwanda, 2008b), temporarily suspending the pupils’ education. Another incident occurred in the south-western region of Cyangugu in February 2008 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).

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 resulting in dozens of deaths and displacing most of the population. In January 2010, Mount Nyamulagira (25 km from Goma) erupted, again, fortunately without casualties. In both cases, schooling was interrupted.

In addition to the natural hazards there are other risks to children’s and teachers’ health that are contributing to the high pupil dropout rate (especially girls) and low attainment associated with occupying unsuitable environments with over-crowded, poorly ventilated, poorly lit, and damp classrooms33:

33 The time spend on teaching is reduced in unsuitable teaching environments, where the teacher as to spend much of his/her time dealing with other issues than teaching. Absenteeism and Beyond: Instructional Time Loss and Consequences, World Bank, October 2007
Most school environments have minimal availability of latrines, hand washing facilities and safe drinking water. There is no division between girls and boys sanitation facilities and absence of sanitary products; one of the contributing factors for girls to routinely miss school during menstruation, which frequently is the starting point to terminate their education completely. Further safety issues also arise in terms of the occupants’ ability to leave the school in case of an incident, as emergency escape routes and escape procedures are usually substandard or absent. It is important to note, that a school is not purely a conglomerate of added classrooms and sanitation facilities, but includes other facilities associated with learning general ‘life skills’. A meaningful learning orientated environment has sport facilities, outdoor learning spaces and overall security for the school grounds to create a “safe space” for the children. However, security measures and clearly delineated boundaries are usually absent and the external spaces and sports grounds are muddy, uneven and often flooded during the rainy season.

These issues highlight the importance of placing safer, healthier and inclusive schools at the forefront of school policies to ensure the safety of learners, teachers, and other school staff and to ensure that quality education can take place.

D 1.4 School construction programmes in Rwanda

In recent years, as the country has enjoyed increasing political stability, greater contributions from development partners have supported the construction of new classrooms and schools. MINEDUC statistics 2007 indicate that there are 2,150,430 primary pupils, 2,370 total numbers of schools and the national teacher to student ratio is 1:74. In accordance with the “Long-term strategy and financing framework 2006-2015” 1,396 new class rooms are required and 668 classrooms to be rehabilitated and constructed every year in order to achieve the MDG 2015 targets.

As stated above Rwanda has made progress in achieving universal primary school enrolment and has increased net enrolment from 69.9% in 1998 to 94.2% in 2008. Completion rates have also increased from 20% in 2000 to 51.7% in 2005/6. However,
despite these substantial achievements in overall enrolment, which to a large extent are due to double shifting and very high teacher-student ratio of 1:74 to 1:95, major efforts are required to increase the overall quality of education and educational facilities, as both are essential conditions to assist retention and attenuation rates. In order to achieve these higher levels it is vital to place emphasis on the quality, inclusiveness, accessibility and child-friendliness of the schools environments and facilities.

This is also in accordance with current education policy, which emphasises the challenges to raise retention and attainment levels and to increase pupils’ enrolment in Rwanda’s nine-year basic education\textsuperscript{34}. The Ministry of Education (MINEDUC), together with its development partners, has acknowledged the importance of the quality of the physical learning environment and its impact on educational outcomes.

Consequently, Rwanda is now constructing or rehabilitating an estimated 2,000-3,000 primary and secondary school classrooms per annum through the joint effort of the government, UN agencies, international and local NGOs, faith-based organisations (namely churches), and local communities. In 2009, the Ministry of Education embarked on a national programme to construct 3,100 new classrooms.\textsuperscript{35}

\textbf{Thus, central questions in rising to the challenge have emerged:}

\textit{How can school environments conform to the global and national education commitments of providing safe, inclusive and child-friendly learning environments? How does safe, inclusive and child-friendliness translate into physical learning spaces? How can the quality physical learning environments be formulated, implemented and guarantied?}

\textsuperscript{34} Which covers primary and Tronc Commun (lower secondary) education.
\textsuperscript{35} Discussion with chef of construction Unit in MINEDUC, Diogene Mulindahabi
Chapter E: Developing Rwanda’s child friendly schools standards and guidelines

E 1.1 Background

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”36 which I assisted. This document sets out the Ministry of Education approved minimum requirement and qualities for all school infrastructure construction for the 9 year basic education facilities. It has been developed “To improve access to education and to increase the quality of educational facilities in an equitable manner.”37 Through this document the Ministry of Education clearly establishes the levels of acceptability as a standard and gives practical guidance on how to achieve them. It is a nationally recognized document that will serve as a standard to all private and public Primary and Tronc Commun schools.

To facilitate this process 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 specialist38 supported the process by retaining the role of lead partner throughout the entire process. Within this context, I had the opportunity to assist the overall process of drafting and consulting on the national child-friendly schools infrastructure standards and guidelines in 2008/2009 for a period of 4 months.

36 The national child-friendly schools infrastructure standards and guidelines for Primary and Tronc Commun, 2009, appendix A
37 “Rwandan Education Quality Standards 2008”
38 UNICEF Rwanda construction expert Luca Ginoulhaic
E 1.2 National child-friendly schools standards and guidelines

The school construction standards and guidelines that were the outcome of this 8 month period of drafting and consulting process are structured into 3 sections addressing different aspects of school environments.

**Section 1** outlines the standards framework. It describes the policy context, 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”.

In **Section 2** planning issues are discussed. This section gives physical and managerial planning guidance for schools infrastructure. It includes issues such as categorising existing facilities with a quick check list, site selection, disaster risk reduction strategies, energy strategies, appropriate technology, child-friendly principles and community involvement strategies.

It furthermore devises a terminology of MUST, SHOULD and MAY which categorises the detailed standards in section 3. It states the minimum standards, as a MUST and simultaneously offers best practice guidelines through the use of SHOULD and MAY. The MUST standards are minimum requirements, it defines quality levels and quantities that every school building and environment has to achieve. The SHOULD category gives guidance on spaces and quality that are encouraged and which are in line with best practice. The MAY category gives good practice guidance on spaces and qualities identified as being beneficial if resources are available.

**Section 3** follows the four national educational standards detailed in the national education policy and translates them into physical standards with detailed quality levels and quantity which are required.

**Standard A** “A school must have appropriate, sufficient and secure buildings.” It
encompasses the required schedule of accommodation and its spatial qualities as well as definition of what elements constitutes a safe and secure building. It sets the national teacher to student ratio of 1:46 per classroom and the amount of sqm allocated per student at 1sqm per student. Furthermore it gives guidance on size and layout of typical classrooms and subject based rooms, as well as layout out and organisation of external play and learning spaces. In addition, it refers to issues of safety and security, such as fire resistant construction, evacuation requirements and procedures in case of danger (earthquakes or other hazards).

**Standard B** “A school must be a healthy, clean, secure and learner protecting environment” gives detailed information on water supply, water harvesting strategies and amount of potable water required per child; the layout, sizes and amount of sanitation facilities, such as separate toilets for girls and boys; as well as details on other hygiene provisions. It addresses the important issue of secure and learner protecting environments by detailing space layout that encourages passive surveillance of all spaces to protect children against harassment and abuse.

**Standard C** “A school must have a child-friendly, barrier free environment which promotes inclusive access and equal rights of every child” provides practical guidance on which physical elements create child-friendly spaces. It addresses the very important issue of inclusiveness and equal access through defining a barrier free environment. This includes the provision of ramps, sizes of door openings, accessible toilets and special needs spaces, as well as raises awareness of spaces that encourage gender equality.

**Standard D** “A school must have adequate and appropriate equipment that supports the level of education.” lists detailed equipment lists and required learning aids that are part of the physical make-up of a school. It explains different classroom layouts and their implication on teaching methods, such as the avoidance of teacher platform

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39 South Africa has set their sqm per student standard for new school construction at 1.2sqm; reporting by Siya Boya and Lubablo Ngcukana, 22.6.2010
to encourage alternative teaching methods and styles apart from ‘frontal teaching’, the banking method described by the educational theorist Paulo Freire.\textsuperscript{40}

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 stakeholders using the document start with the “soft” aspects of educational principles outlined in the educational policies and define the underlying concepts and reasons the standards are based on. That is followed by precise practical guidelines within sub-categories to guide the users on how to achieve these ‘soft’ educational principles through the design and planning of the “hard” physical elements that constitute school facilities. This approach was devised to enable all stakeholders irrespectively of their educational or construction background to have the same understanding of the core issues. This organisation contributed to facilitate a more productive working relationship and set it apart from other examples\textsuperscript{41} in so far as it spells out the close interrelationship between the conceptual “soft” educational issues and their manifestations into “hard” spatial and physical components.

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 litres per pupil per day; full-time pupils with lunch at home require 1 litre per pupil per day; and boarding pupils require 2.5-3.0 litres per pupil per day.

One of the key aspect of the standards are not the individual standards themselves, but the methodology of \textbf{MUST, SHOULD and MAY}, by which all standards are categorist.

\textsuperscript{40} Paulo Freire, Pedagogy of the Oppressed
The terminology is supposed to facilitate flexibility and time and space for continued improvement to take place without overbearing pressure to achieve fixed unrealistic standards that are unachievable in the near future. If the level of acceptability is set too high the current financial and human resources are not sufficient and a possible consequence could be that the standards render themselves ineffective and an expensive ‘paper exercise’. To avoid this situation to unfold particular care towards the delicate balance between quantity (access) and quality is essential. The aim is to achieve a workable/ appropriate framework of national specific standards that facilitates equitable access for all children and creates a high quality learning environment that promotes child-friendly education to take place.

Much information is available on good practice from around the globe for school infrastructure. (e.g. Eastern Cape Department of Education, 2005; Leathes, 2009; Petal, 2008; Theunynck, 2002; UNICEF, 2009; UNICEF and the Ministry of Education, Thailand, 2006; UNICEF and the Ministry of Education, Thailand, 2008, UK building bulletin 98, Dudek 2000, Herberger 2008). However, standards, good practice, lessons learnt, and guidelines from other parts of the world have to be adapted to Rwanda’s 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 re-construction or rehabilitation would be needed sooner, thereby not gaining the maximum out of the capital investment.

So, for example if the sqm per child is to increase from 1 sqm per child to 1,2 sqm per child, as it is in South Africa, than the capital cost per classroom would increase substantially allowing fewer classrooms to be built, which would consequently have a negative impact on achieving equitable access to free basic education. However, if the sqm per child is set lower, the classroom would become too small to facilitate alterative
teaching methods; it would impact on the interaction between teacher and students and would exclude children with disabilities to access the classroom. All these aspects would be damaging to a learner centred environment and create spatial obstacles rather than appropriate facilities for learning.

The rehabilitation and expansion of an adequate school infrastructure places many strains on the financial and human resources available in Rwanda, even with the firm commitment by the Rwandese government and nearly a quarter of the annual national budget allocated to education. Within any national context substantial capital investment is required to build up a national school infrastructure as well as professional skills and governmental capacity to plan, procure, construct, manage and maintain the physical school environments is indispensable. Yet Rwanda is a low income country with severe underdevelopment problems, limited human and financial resources, and limited technical capacity. Within this resource scarce environment it is imperative to take particular care in categorising the standards with careful consideration to quantity and quality to achieve a national appropriate framework. Consequently a fine balance between providing sufficient quantity to an adequate quality without overstretching the financial resources and expecting too much of the limited human skill base is necessary. Appropriate tool and enabling frameworks are required that are incremental and flexible to work within this resource scarce environment. To achieve this it is important to develop a national document that is in one part a rule by stating the national minimum standards however as it incorporates different levels of targets through the use of the terminology of MUST, SHOULD and MAY, it becomes a tool which guides the nation towards incremental improvement. The tool approach encourages and facilitates gradual development without condemning the current state of the infrastructure as substandard and unusable. The rule approach would to a large extend condemn a majority of the current school environments as substandard increasing the lack of available school environments even further. This approach would not be beneficial to the larger aim of improving quality education and achieving universal basic education.
Consequently, it is essential to undergo an effective consultation process with a wide spectrum of national stakeholders where the level of acceptable standards can be discussed and agreed in accordance to the specific conditions, available resources and technical capacity of Rwanda. Some form of consultation process is standard in development work, but it is reaffirmed here as being fundamental to the concept of the standards. Through the interactive process of working groups and technical workshops for each individual standard, the document aimed to gain increased accuracy, usefulness, and relevance. After a few working group sessions, the working relationships accumulated momentum and acceptance as results became visible. It gained the best technical inputs from those involved and ensured acceptance and commitment to the inclusive nature of the process, to the final standards and the immense task of implementing on what has been agreed as a national standard.

The task to draft Rwanda specific standards which are national specific and achieved legislated into national law within a reasonable timeframe are complex. The next steps is to implement the standards. Continuing the momentum of constructing school infrastructure compliant to the new standards and monitoring its progress is a long-term challenge, which requires a national system administrating and managing the process.

**E 1.3 Lack of national school infrastructure data**

School construction and rehabilitation are in every context extremely capital intensive as described in previous chapters. Rwanda has severe underdevelopment problems, limited human and financial resources, and limited technical capacity\(^42\). Only limited time and resources are for disposal to effectively plan/implement/procure and monitor the overall process to procure quality child-friendly school environments. Typically, the built infrastructure quality depends on the human and financial resources as well as human capacities available at each institution level for managing and implementing the complexities of construction projects (design, construction and monitoring).

\(^{42}\) There are currently 25 registered architects nationally, most construction specialist are imported from Uganda. Discussion with Eudes Kayumba, construction unit director, MINEDUC, until 2009

Section of classroom according to new standards
An essential precondition to implementing the national school infrastructure programme in order to provide free nine-year education is to gather accurate national data. This database is essential to effectively prioritise, to plan informed implementation strategies (procurement route), and to monitor and evaluate the construction effectively. Examples of data needed are twofold. Firstly data that records the current condition of the physical environments, the school grounds and buildings such as damages and shortcomings in respect to the new national standards. Secondly educational and managerial data that have impact on the planning of the school infrastructure, such as security incidents on school property, truancy rates, retention and attenuation rate for the nine-year education programme, girls drop-out rate, student to teacher ratio per class, forecast of pupil enrolment numbers and budgets verified to have been spent on appropriate tasks.

Currently, such data is not available nationally. There is no functioning mechanism in place to facilitate a comprehensive national data collected system. The country’s “Education Management Information System” (EMIS) is not yet developed enough to fulfil this role. It currently only collects data in relation to enrolment and retention rates, though not in regards to quantity and quality of the school infrastructure. The lack of such a system contributes to the persistent inadequateness of school environments. One of the most damaging issues is that it encourages favouritism in the way funds for new infrastructures are dispersed.\cite{43} It is seen to contribute to emphasise the inequalities throughout the nation and obstructs the less developed districts, in particular the rural eastern provinces, to make progress in providing quality and child-friendly educational environments, denying these children access to better education. Furthermore, the lack of transparency in allocating funds contribute to a deficiency of overall governmental legitimacy and adds to the disempowerment of the local population to engage in shaping their local educational environments; an important aspect of Rwanda’s civil society. The school facilities are often the largest buildings within the communities.

\cite{43} These are mostly the urban schools, which have better access to information and are located closer to the national centre of government.
with occasional electricity supply and sanitary facilities and therefore offer important facilities to the community for various additional activities and events such as adult learning, community meetings and festivities.

Within Rwanda’s resource-scarce environment the participation and contribution of the local population is an indispensable asset, without it the target of achieving quality free 9 year basic education that supports the next generation of children to be part of a knowledge-based society seems questionable.

Finally, the progress to improve the quality and quantity of school buildings and grounds cannot be compared over time and region if no national database is set up and maintained. Thus missing the opportunity to learn from past failures and success as well as generate a mechanism of institutional learning and skill building. One such task is training inspectors to monitor the implementation of the 2009 national building code which was also drafted in 2009. That will contribute to showing that transparent and equitable planning (see also Beynon, 1997) and implementation can be achieved.

While drafting and consulting on the school standards and guidelines this ‘institutional gap’ became increasingly apparent and was much discussed during the consultation period in the districts. The standards were welcomed and perceived as essential to improve their school facilities, though doubt was raised that districts and central government had the capacity to monitor the implementation. Several school heads mentioned that construction on their school faculties had been delayed, stopped or were of poor quality. A strong desire was to be able to engage more effectively within the decision and monitoring process to achieve better quality construction results. Also, the local community was keen to contribute to the process, as the prospect of better education facilities offers important facilities to the whole community.
Chapter F: School environment assessment tool (SEAT)

F 1.1 Developing the School’s Environment Assessment Tool

To address this ‘institutional gap’ of having limited information of the state of the national schools infrastructure I have developed the “School Environment Assessment Tool” (SEAT) (appendix B), I have worked together with the Director of School infrastructure unit in the Ministry of Education Rwanda and the UNICEF Construction Unit of Rwanda to tailor this tool to work alongside the new national school infrastructure guidelines and standards (2009), the country’s “Education Management Information System” (EMIS) and the capacity of the local population. The assessment tool acknowledges the complexities of implementing an equitable, transparent and appropriate national school infrastructure programme and consequently aspires to create a linking mechanism that effectively considers the existing human and institutional skills/ knowledge.

The current structure, lay-out, and wording of the assessment tool were developed over the last 12 month period with much input and comments from the UNICEF construction specialist in Rwanda, the Ministry of Education Director of the Construction Unit and other construction and education specialists. The wording of the questions and the specific content were discussed in explicit detail to safeguard the simplicity of the overall structure and the individual questions. Several revisions were made and circulated and due to this process it was agreed that only questions addressing the MUST standards should be included into the core package of the assessment tool. The SHOULD and MAY items could be similarly formulated, though should be kept separate as an addition to the basic assessment, to avoid the process becoming too cumbersome and lengthy. The intension was to keep a fine balance of simplicity without becoming simplistic.

However, the issues of fine tuning and refinement are only possible to be assessed after a thorough piloting and implementation period. Currently the assessment tool is still in draft version and I am in discussion with, the Director of the Construction Unit at the
Ministry of Education how it could be tested and refined in regards to implementation strategy and data collection and analysis. At this moment the forms are used as they are by the construction unit’s engineers to collect school infrastructure data, though the important component of self-assessment by the school community has not been tested in the Rwanda context.

**F 1.2 The principals of the SEAT**

The School Environments Assessment Tool (SEAT) is in principle a set of specifically tailored questions designed to obtain specific information about the existing condition of a school environment from the local school community. The role of this simple standardised tool is to assist in improving the quality of education on several levels.

Firstly, this tool enables the community to understand and compare the current state of their own schools in relation to the National Standards (“Child-friendly school infrastructure standards and guidelines 2009” Rwanda). It operates on the underlying assumption that the knowledge transfer of child-friendly principles to the end users will create a better informed and empowered school community and facilitate participation in the incremental process of improving their individual learning environment. The questionnaire is written in non-technical language, understandable by head teachers, teachers, students and parents alike. It engages the school community to assess the current physical condition of their school environment without the need for a district engineer or other construction ‘specialist’. The important aspect is that it enables the school community to form its own individual perception of the current quality of their school buildings and grounds in relation to the new national standards. This assessment process aims to firstly inform the school community of the existence of the child-friendly standards, which may be unknown to them, and secondly allows them to form a clear understanding of the discrepancy between what they have and what they should (have a right to) have. The overall process is hoped to capacity build school staff/parents and students through their participation in the collection of assessment data and, most importantly, contribute to strengthen their political voice to request quality
rehabilitation works.

Secondly, it is envisaged that standardised data sets derived from the assessments will be collated and contribute to accurate planning and prioritise action plans at each administrative level. This would allow effective strategic planning to be based on first hand, up-to-date information. Furthermore it could provide the relevant data to select sites equitably and transparently while providing the data over space and time for planning and monitoring the construction effectively. This harmonised data set could be suitable to build up a comparative study of failures and successes contributing to institutional learning and skill building at national governmental level, particularly useful for the Construction Unit in the Ministry of Education.

Finally, and in my opinion most significantly in respect to the recent history of Rwanda, the process of collecting and assessing technical data concerning the physical environment can contribute to strengthen partnership and trust relationship between all administrative levels and in particular between district government and local school populations, parents and teachers. The collective efforts of building physical spaces can have the very beneficial side effect of strengthening human relationships and cultivating a culture of information sharing that is transferable to other areas of public life. All in all, it will support the emergence of a sustainable Rwandese civil society.

F 1.3 How does it work?

The SEAT Assessment tool is structured to follow the new school infrastructure guidelines and standards and the individual questions refer specifically to the relevant clauses in the standards. The questionnaire is organised in several chapters:

Chapter 1 collects data regarding general information, such as student and teacher numbers

Chapter 2 asks questions about the overall spatial provision the school uses at the moment. It ask questions about classroom provision and explains the method to calculate

“Once you know what you have and don’t have, it becomes easier to know what you need and plan for it.”

Quote from discussion with headteacher of a primary school, Rwanda
how many extra classrooms are required to comply with the new standard of max 46 students per classroom at a 1sqm per child ratio. It asks questions about the actual size of the average classroom to make the teachers aware that smaller classrooms can only accommodate fewer children. It proceeds to ask questions about double shifting and its impact on overall classroom numbers, the forecast of overall student numbers in the next 5 years and a ‘hands-in the air’ survey to determine the pupils’ travel distance to school. Furthermore, it raises awareness about the provision of other required learning spaces excluding the classroom. This includes spaces such as teacher’s rooms, learning resource rooms, storage facilities and special needs spaces.

All these questions are tailored to establish the amount and type of spaces that are currently used by the school for learning activities. It aims to establish a very rough understanding of how many new classrooms and other ancillary spaces are required and should inform the overall site planning of the school grounds.

Chapter 2 does not address the quality of these spaces or if they are adequate to be used for child-friendly learning activities. This is taken up in Chapter 3 which addresses questions of spatial quality, such as structure, construction material, ventilation, daylight, issues of accessibility and security. Here, the questions are organised to be answered with Yes or No for all individual spaces, classrooms and ancillary spaces alike, as questions of structure and construction material normally addresses the overall building and not just individual rooms.

The questions in this chapter are very carefully phrased to avoid the use of technical language and require no technical knowledge. This aspect is most important, as the assessment should be able to be used by the whole school community and should not rely on people with technical construction knowledge. For example, to determine if there is adequate ventilation, the question is: Do pupils have problems staying awake in the classroom or concentrating due to high temperature? The fact that children fall asleep if the internal room temperature is too high was explained to us by a pupil during
the consultation period and consequently this question can be answered best by the pupils themselves. It accurately indicates if the rooms have enough natural ventilation, such as windows, doors or shutters. The chapter proceeds to establish if the existing buildings have structural integrity. The question asks what material the walls are made of and if the building would withstand an earthquake, strong winds, heavy rain or fire in the assessors opinion. This question uses the school community’s extensive experience in using the buildings throughout the years and its performance in various weather conditions and incidences. Though the answer will not give a technical quantifiable answer, it is in many respects more accurate and useful than a short site visit by a technical expert/ engineer, who has no further knowledge of the building than an initial visual assessment of the structure.

This chapter then progresses to raise questions about the internal quality of the spaces and provision of school furniture, such as Does each pupil have a table and a chair/ bench place? These questions address the need for each child to have their own place to sit and participate in the class activity from every location in the room, as well as how the use a of teacher platform and row-bench layouts are unfavourable to alternative teaching methods other than ‘frontal teaching’. These questions attend to not just physical aspects of internal room layout but refer to teaching methods and theories that are part of the child-friendly methodology. It intends to raise awareness of the relationship between teaching methods and spatial layouts.

The last chapter focuses on the water and sanitation provisions including, separate girls/ boys and teacher toilets, the provision of accessible toilets and wash cubicles, quality of existing toilets and provision and amount of drinking water.

**F 1.4 Information Flow**

The assessment is initiated at the individual school level by the school community, head teachers, staff, Parents Teachers Association (PTA) and students. Following this assessment the schools have the knowledge and understanding to work with the
At district level the assessment data can be collated and analysed to inform and facilitate the development of the districts strategic plan. From the district level the collated information is sent upwards to the regional administrative level, where all district analysis and strategic plans are compiled to be sent to the central government level for their analysis and draft of a national strategic plan and strategic forecast of spending required.

Once a harmonised baseline data set in relation to the national standard is obtained, this information can ease the process of developing a comprehensive and equitable national strategic plan in accordance with the national educational vision.

The key to this process is the transparent flow of assessment and planning information between all the administrative levels. Discussions concerning needs and priorities will surface strongly through this process. Once accurate baseline information, which is owned by the community, is obtained in a standardised format, it has the potential to contribute to the development of a comprehensive and equitable national action plan.

The Education Management Information System (EMIS) is one of the vehicles this process may be managed. As mentioned before, currently the EMIS system does not include school infrastructure data, but it has the potential to be incorporated and the SEAT document was designed with this possibility in mind. In time, internet connections may be available at each school[44] and a digital system maybe functioning, if so, a digital data input form can be created and a way for analysis can be developed at each administrative level.

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[44] Currently only the Trone Commun schools are prioritised to have electricity connections and ICT spaces. However, the vision 2020 promotes ‘one laptop per child’ policy, consequently electrical supply is paramount.
F 1.5 Informing the annual schools infrastructure plan

As mentioned earlier, the assessment tool is written to determine the current physical conditions of schools in relation to the new national school infrastructure standards. It is designed to sit side by side with the standards. The information and data gained through this assessment process can then be used to inform the Annual Schools Infrastructure Action Plan in respect to prioritisation and budget distribution. Its outcome can be monitored against the school Infrastructure Strategic Plan and Policy.

F 1.6 Testing SEAT in the Democratic Republic of Congo

UNICEF is re-constructing social service infrastructures throughout the Democratic Republic of Congo which have been devastated after years of war and which is experiencing a state of neglect and decay. As an important part of UNICEF programme these re-construction activities aim to offer dignified spaces for activities such as education and health to the communities. In post-conflict returnee locations durable construction can add to a sense of permanence to the communities and is intended to contribute towards the stability in the region. Although DRC neighbour Rwanda’s conditions are very different, in the Eastern DRC conflict continues, access to sites is difficult and availability of construction materials is scarce. These conditions are further incensed by weakened governance, thus in terms of school construction most of the activities are headed by UNICEF. In the period between 2007 to 2010 UNICEF will have re-constructed approximately 1,000 class rooms approximate worth $10million in contract value. In 2010 UNICEF will re-construct 558 class rooms.

The assessment tool has been tested within a slightly different context in the beginning of 2010 in Goma DRC, as an evaluation tool of newly constructed school buildings. These structures are part of UNICEF’s PEAR+ programme, (programme to increase the assistance to returnees). It was offered to UNICEF Democratic Republic of Congo to

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45 The largest programmes being PEAR+ and Japanese projects in the Eastern Zone and Central zone.
aid a technical mission to evaluate current construction practices and provide guidance and direction to UNICEF’s construction activities strategy.

**F 1.7 Piloted SEAT**

To pilot the SEAT in the DRC, the original SEAT based on the Rwanda school infrastructure standards was firstly adapted to DRC national standards. This was a fairly simple process as the DRC national standards are much simpler than those in Rwanda and the SEAT was easily amended. Practically this meant changing aspects such as number of students per classroom ratio from 46 (Rwanda) to 50 (DRC) and floor area per child from 1.0m² per child (Rwanda) to 1.2m² for DRC. Subsequently the document was translated into French. Following this preparation work, hard copies were taken to site visits of several schools which UNICEF just completed. With the help of UNICEF local staff, the head teacher filled out the SEAT on site, within 15 minutes. After the process was repeated at several construction sites gained information was assessed by the infrastructure consultant in Goma. In his feedback he described that the questionnaires were easily understood by the teachers and proved to be helpful to gain essential knowledge about important aspects of the completed school buildings.

Furthermore, he mentioned that several questions prompted interesting conversations with the head teacher concerning issues he was not aware of, thus acting as a way to propagate good practice. As an example the question 2.8 asks: *Are you aware of alternative classroom layouts to encourage different form of teaching? Yes (Y)/ No (N)* and does the classroom have a teacher’s platform? *Yes (Y)/ No (N)*

The head teacher did not understand the importance of this question initiating interesting conversations about how different teaching methods can be created by having moveable tables and chairs, referring to standard D.1.2 Classroom layout. The options of various group arrangements and cluster arrangement were not known, as well as the problem of full length teacher platforms which prohibits wheelchair users to approach the blackboard.
Chapter G: Conclusion

The paper aimed to explore how specifically tailored tools, standards and guidelines can contribute to improving the national school environments in Rwanda. It raised the questions of how these concrete propositions such as the national school infrastructure guidelines and the schools environmental assessment tool (SEAT) can assist in raising the quality of the school environments. It explored in which way the national school infrastructure standards and the SEAT facilitates improvements of the school environments through the use of incremental targets, which contribute to reach the global commitments of safe, inclusive and child-friendly education for all children. It makes the case for an inclusive decision making process to be a key component to achieve the translation of ‘soft’ educational aspects into appropriate ‘hard’ physical aspects of the learning spaces. Furthermore the paper looked at how these propositions assist in setting up more effective implementation strategies by enabling the current available skill base and knowledge of the school communities to improve the equitable provision of quality construction.

In Chapter A key historic moments of shifts in educational values for school infrastructure are presented showing interesting resemblance and relevance to the current Rwandans context. It becomes clear that other nations have experienced similar challenges in the past and present, and these precedents give important insides in how other nations have addressed the challenges. The emphasis on basic hygiene and health provision in the Victorian schools in Britain to counteract the unhealthy and overcrowded living conditions of the urban environment is still, 150 years later, one of the vital aspects for the new school environments in Rwanda. Also within the Rwandans context these provisions aim to counteract the often unhealthy living conditions and to improve the children’s overall health and ability to learn.
Most intriguing is that Rwanda’s Vision 2020 report sets out as their main educational objective “the education of knowledge based society for the 21st century”, placing ICT and research based learning at their educational centre. This is echoed in the UK’s BSF programme creating interesting parallels between Britain and Rwanda; representing two countries of vastly different resources and current standards nevertheless aiming for the same educational outcomes. This trend of national educational agendas of culturally, economically and socially dissimilar countries to merge is becoming increasingly apparent. It places the debate about quality education and appropriate educational facilities within a global setting. The historically national debate how to educate the next generations and construct appropriate school typologies is transforming into a global discourse. This exerts immense pressure on resource scarce nations like Rwanda to perform to an equal standard as developed nations such as Britain. Rwanda has the challenges to master the complexities to plan, implement, manage and maintain national school infrastructure within an environment that has little financial resources, human skills and technical capacity. It does not have the political option to allocate £4.5 bn to the construction of tailor made school environments with state of the art ICT equipment as the BSF programme in Britain did. For Rwanda more pressing challenges are to increase the quality of education to improve the retention rate, the inclusiveness of the educational environments and teaching methods to reduce the drop-out rate; consequently to achieve basic education and contribute to the overall well being for all children.

Within this context it is vital to set up mechanisms and procedures that respond to these challenges in a way that enables the existing minimal financial resources and limited human capacities to improve at incremental steps. The national child-friendly standards and guidelines as well as the SEAT are written with this concept in mind; both are in their approach and structure more a ‘tool’ rather than a ‘rule’ encouraging the facilitation of the existing conditions as a starting point for incremental improvements. Rules such as fixed standards and rigid procedures have the tendencies to condemn
existing conditions of the schools as substandard rather than to view them as starting point for gradual improvements. Whereas a ‘tool’ -that is context specifically tailored- has the capacity to create an enabling framework that encourages progress. It allows the school community as well as the administrative and governmental bodies to work within their current skill level and gradually capacity build their members. Most importantly, it creates a framework for good working partnerships. Drafting the national child-friendly school standards and guidelines pursued the objective of setting up national standards that are responsive to these needs through its terminology of MUST, SHOULD and MAY, and through a process of inclusive decision making each component of a school was categorise according to the priorities of the stakeholders. As described in the previous chapter built infrastructure quality depends on the human and financial resources as well as human capacities available at each institution level for managing and implementing the complexities of construction projects (design, construction and monitoring).

From my experience, I believe that human resources, such as technical skills and knowledge as well as personal commitment can overcome the shortfall of financial resources. A well informed, committed and personally motivated school community can achieve an appropriate standard for their educational facilities by investing time, energy and creativity in using their scarce resources in an innovative way. Committed key personnel within the school environment can with their extensive knowledge of the locality and daily inhabitation take on key roles to plan, monitor and report on the construction process and quality issues.

Consequently, it is vital that the SEAT enables the community to understand and compare the current state of their own schools in relation to the new national child-friendly standards without the need for ‘expert’ advice, this was achieved by using non-technical language and a simple step by step process. It encourages the school community to form its individual perception of the current quality of their school

Rwandese students during breaktime
facilities and to establish a framework that connects the existing ‘expert’ knowledge within the community with the institutional and governmental technical skills/ and capacities. Thus contributing to forming an equitable working relationship that has the capacity to be transferred to other areas of public life and assist in strengthening Rwanda’s civil society.

Reflections on testing the SEAT within DRC

In his reflections on the testing SEAT within the UNICEF DRC context, the construction consultant stated that the SEAT was a very successful tool in regards to having a comprehensive set of questions, which enabled a quick method to gain important insights into UNICEF school construction programme and compare and contextualise the outcome within UNICEF’s global Child-friendly principles. However this effort to conduct an initial testing of the SEAT was too limited in scale and time frame to actively involve the whole school community into the assessment. The assessment was only conducted by the head teacher keeping the gained awareness and knowledge within too limited circle to be useful in encouraging debate within the school community, between teachers, students and parents. The collated information remained within UNICEF’s administration and until now did not spark further investigation and efforts into creating a working partnership between school community, donor and governmental bodies to improve the conditions of the school infrastructure.

Yet, when the SEAT was presented at UNICEF’s International Conference for Construction in Nairobi in July and in Bangkok in September of this year (2010), several country offices and the chief child-friendly school advisor in New York were very interested in the concept of this tool as well as its comprehensiveness. It was encouraging to gain recognition of the value of the SEAT. Now the follow-up challenge is to advocate other nations to test and adopt this tool with a more comprehensive set up.
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Appendix A:

National child-friendly schools standards and guidelines, Rwanda

Appendix B:

School Environmental Assessment Tool, SEAT