Issues in Human Capital Development : Lessons for Public Administration and Governance

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Abstract

With few minerals or other natural resources, Rwanda believes that she can still achieve her ambitions by investing in human capital - her unique resource. If this ambition can be achieved, then is this the next role model for international development? We used a case study design and analysis methods to examine development models used elsewhere in recent decades, using both qualitative and quantitative data on Rwanda to establish the comparative advantages in relation to Singapore’s economic development model. The implications for international development are that (1) an effective human capital development strategy should be inclusive enough to respond to national economic growth priorities, reaching far beyond the provision of education in traditional sense; it requires direct involvement of the private sector, civil society and government (skills users and skills supply), and (2) interventions required in one sector have to be complemented by the others in not entirely related sectors.

Key Words: Human Capital, Policy, Economic development model, Strategic Pragmatism, Education Policy, Developing economies, Institutional reform, unconventional methods, Rwanda, Africa, Singapore,

Introduction

The thinking that the “knowledge agenda must move beyond a dissemination of the ‘mechanics of learning to directly address issues of discourse in knowledge generation” (Tanya 2008:313) is explored using the case study of Rwanda. To become a knowledge-
based economy, and to lift her people from poverty, Rwanda has to attract investment and expand its private sector. But lessons from Singapore (Schein, 1996, Yew 2000) are that a knowledge-based economy requires an appropriate level of expertise and skills for Rwandese to become active participants in the economy instead of being its burden. The leadership qualities that are required to move the country rapidly need to be driven by a strategic pragmatism\(^1\); and the public service structures and processes are required to be agile and flexible, driven by a culture of quality service delivery good enough to be responsive to the needs of the private sector (see Bellows1989; Yew 2000). Achieving this level means that necessary reforms in public service, staffed with well trained and motivated personnel are required to deliver because - in the words of Bellows (1989), “Socio-economic development and nation building, it is assumed, occur when the economic system and the government work closely together under the guidance of rigorously selected and well-trained meritocratic elite”. Our research is informed by international best practices from countries such as Singapore (Barr 2000; Barr and Skrbiš 2008; Bellows 1985; Schein 1996), Malaysia, Kenya and South Africa (see Aron, Kahn and Kingdon 2009 and Schoeman 2010) from which Rwanda is borrowing a leaf from their books when it comes to the strategic thinking and governance philosophies. We further seek to answer the question on whether Rwanda’s development is path-dependent or political (Poteete 2009).

There is particularly an interest in this case study, because Rwanda has emerged from the bloodiest conflict in recent history that left at least 800,000 of her citizens’ dead over 100 days during the genocide. Although the genocide was far-reaching among the educated and wealthy community, it was actually targeted to eliminate the Abatutsi tribe. Seventeen years on, the country has made significant progress towards achieving the Millennium Development Goals, (WHO 2010; World Bank 2009). The international community continues to say that Rwanda is an exceptional case when it comes to post-conflict reconstruction (UNESCO 2010; World Bank, 2009;) with her unique repositioning on the African continent through her assertive pragmatic policies\(^2\); focussing on her fast-track development through improved business climate reforms (World Bank 2009); placing Human Capital development at the forefront of development (MINECOFIN, 2007; UNESCO 2010)

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\(^1\) ibid.

\(^2\) Singapore has always had a clear and well-articulated strategy of economic development. One of the most salient characteristics of the EDB in particular and Singapore in general is this "Strategic Pragmatism", the ability to simultaneously solve immediate problems and to fit the solutions into a longer-range plan.
and high-level participatory governance decisions among others (UNDP2007). As Tanya, (2008:313) puts it, “capacity building in [Rwandan] organizations, need to engage with more critical analysis and debate of key development concepts, moving beyond the sharing of experience to challenge existing paradigms”; but this is something that has not been applied effectively in the development circles. Rwanda did follow this line of development and this paper has documented and analysed key steps and actions taken. Our objective in this paper is to develop a case study analysis in one area of key national development of Rwanda, and draw some lessons for international development, especially with regards to governance and public administration policy and practice.

**Methodology**

This is based on field work, a literature review and policy analysis conducted over a period of three years between 2008 and 2011. Our work comprised of a National Skills audit in the public and private sectors, a capacity-building needs assessment, a functional review of Public Agencies’ and Ministries’ review of key national strategies, and an analysis of the financing priority vis-à-vis priority sectors in the economy. In particular, the skills gap analysis provided a quantitative understanding of the scale of the problems facing Rwanda. The analysis of our data is both quantitative and qualitative. This brief field report highlights our findings and indicates policy implications for human capital development in Rwanda. Although our conclusions are based on Rwanda, we believe they provide very good encouragement for those countries that appear in the low range of the United Nations Human Development Index.

**Rationale and limitation of the case study**

This study is limited to one pillar of development - Human Capital. There is however a recognition that this pillar is the most important according to the government of Rwanda. It embraces ICT, the private sector growth, the Civil Services values and mindsets, the support given to the Small and Medium enterprises, the investment strategies and so on. This strategy encapsulates the National Development Agenda priorities for Rwanda, and hence our rationale for the focus of this study.
Preliminary concepts

The national human capital development

“Human capital” represents the investment made over people’s lifetimes in the knowledge, skills and abilities that make it possible for them to do their jobs, be innovative and able to learn how to learn. Investment made in human capital leads to ever increasing financial returns. (UNDP 2009:60).

Human capital development is best viewed in respect of the pyramid of its various components as illustrated in figure 1 below.

Figure 1: Levels -of Assets in Human Capital.  Source: Author

The human capital development cycle

The human capital production line stretches from stable and enabling social environments to prenatal health care, through primary secondary education, post-basic education and the work environment as shown in figure 2 below.
Human capital development is therefore about initiating, supporting and investing in people, using a variety of means, including education, training, ICT, coaching, mentoring, internships, organisational development and human resource management.

**Pillars of Human Capital Development**

Figure 3 below indicates four basic pillars that should guide Rwanda’s Human Capital Development strategic options.
Addressing Rwanda’s Human Capital Development (HCD) challenges, and thus bridging the skill gaps in various sectors, requires a comprehensive national strategy, but three issues are fundamental in this endeavour. 1): Improving access in and enhancing the quality of basic education (first nine years of learning). That is creating a solid base for further Human Capital Development (UNESCO 2010); 2): improving the skills and work ethics of the current work force in the public, private and civil society sectors; and 3) investing in more resources in higher education, especially in science, technology and research.

The international benchmarks to Rwanda’s human capital development

Research evidence shows that education attainment is the best predictor of long-term economic growth and social progress. The most robust measure of human capital in predicting growth is the average years of schooling in the adult population aged 25 plus. In 2000 this ranged from a low of 0.76 years (Mali) to 12.3 (USA). Rwanda’s education per person was two years, in the bottom five per cent (Barro and Jong-Wha 2004) (refer to figure 4 below).

Research suggests that economic take-off begins at about three years per person — a level that the Asian tigers (except Malaysia) had attained in 1960, and Malaysia by 1970. Lee et al (2008) use this term in reference to the highly developed economies of Hong Kong, Singapore, South Korea and Taiwan after 1970. These regions were the first newly-industrialized regions, noted for maintaining exceptionally high growth rates and rapid industrialization between the early 1960s and 1990s. By the 21st century, all four regions have since graduated into advanced economies and high-income economies. However, attention has increasingly shifted to other Asian economies which are now experiencing faster economic transformation. All four Asian Tigers have a highly educated and skilled workforce and have specialized in areas where they had a competitive advantage. For example, Hong Kong and Singapore became world-leading international financial centres, whereas South Korea and Taiwan became world leaders in manufacturing information technology. Their economic success stories became known as the Miracle on the Han River and the Taiwan Miracle and have served as role models for many so-called developing countries.
China reached the take-off required threshold in the early seventies; Brazil and India in the mid eighties. Closer to Rwanda is, Kenya. Kenya reached this threshold in the early nineties and Uganda a decade later. Besides, for sustained economic growth, a country needs 30 per cent of graduates in the national population. There are only 0.5 per cent of graduates in Rwanda’s population, with the African average being four per cent.
Rwanda lags behind in Human Capital Development (with the most acute deficiency being apparent in the education sector, applied and natural sciences, ICT and in vocational and technical fields in both the public and private sectors. By 1994, Rwanda had only one Public University and two small private Institutes. From Rwanda’s independence until 1994, a total of 1200 graduates were available in a population of just over seven million. After the genocide the majority of those with University degrees were either dead or had participated in the genocide and were therefore facing justice. The hardest hit of all the sectors was the education sector. The infrastructure was destroyed and there were no teachers or University lecturers; the private sector was equally non-existent, and the majority of the people were living in refugee camps and or internally dissipated. If one considers the comparative figures between now and 1994 education output is 8000 graduates per year. This figure is ten folds the output of the entire country graduates covering a period of the 30years prior to the 1994 genocide. The quality has also improved significantly as in line with modern demands of the labour market.

This is in contrast with the period 1962-1997, a period under which Rwanda was following the traditional development route as was imposed by development partners through a choice of their funding priorities in the education sector. The government having taken a drastic measure of owning and making choices of priority-i.e. from 2000, the government invested in in ICTs as a priority and strategic long term intervention (Government of Rwanda 2000) to expand the educational provision, through distance learning, libraries, and ease of online learning. This was the deliberate intervention. It most certainly cut down on physical infrastructure costs that would be required to in order to expand rapidly and maintain quality of the education provision to the speed necessary to provide a country with take-off thresholds.

This one example and others discussed herein, show how ambitious and pragmatic policies taken by the Rwanda Patriotic Front-led Government are delivering on result; however, these also, raised difficult dilemmas for development partners: how do you support the process of building a knowledge-based economy in a country with no shelter, no water, no food, no electricity and a lack of healthcare provision for her people? Should the international community leave Rwandans on their own, or would that send the wrong
message that development partners only support what they choose to, and what they consider falls within the normality of practice? In this case, the Rwanda strategic choices have never tallied with the internationally benchmarked best practices. The best (and only) example to follow is seen as the Singapore economic model. The Singapore roadmap is, at the least up until today, the most one that closely related to Rwanda’s situation and such a roadmap has been followed by few other successful Asian tigers but on their own way. Figure 5 below on Singapore’s road of economic transformation

Figure 5: Singapore Economic Transformation 1960s. Source: Author

Figure 5 shows Singapore’s major economic development stages. By the 2000s, the per capita income of Singaporeans had moved from about USD320 to USD20,000. Below are further details of key stages of the Singapore economic model, the challenges the economy and the people faced and how they were tackled by the government from time to time. This brief analysis serves to allow further analysis and inform understanding of the Rwandan strategic choices. There are striking similarities, especially with the early stages of Singapore. Below we have used the EDB’s description of Singapore’s progress over the last five decades. A review of Yew’s (2000) view on Singapore’s progress highlights the following milestones.
In the 1960s, Singapore was a third world country with a GNP per capita of less than US$320. Infrastructure was poor, there was little capital and the handful of industries produced only for domestic consumption. Low-end commerce was the mainstay of the economy, and there was little or no direct foreign investment. There was massive unemployment and labour unrest following the withdrawal of the British troops. Creating jobs was the priority, and this meant attracting labour-intensive industries. First, however, there had to be an environment conducive to industrial development.

Singapore's industrialisation programme began with factories producing garments, textiles, toys, wood products and hair wigs. Along with these labour-intensive industries were capital- and technology-intensive projects from companies such as Shell Eastern Petroleum and the National Iron and Steel Mills. The expulsion of Singapore from Malaya in 1965 meant the loss of a vast hinterland from which to draw raw materials, as well as a large domestic market to absorb finished goods. The new challenge for Singapore was to develop export-oriented industries. The EDB opened its first overseas centres in Hong Kong and New York to be better placed to woo foreign investors.

By the 1970s, unemployment was no longer a problem for Singapore. Industrial development was surging ahead. EDB marketed Singapore as a quick operations start-up location, where factories were built in advance of demand, with a highly skilled workforce readily available. Singapore's industrial base widened. The products manufactured became more sophisticated and included computer parts, computer peripherals, software packages and silicon wafers. This led to new investments, particularly in electronics, and product diversification, which greatly enhanced export performance in spite of a global recession.

The Overseas Training Programme was drawn up in 1971. This placed young Singaporean workers in apprenticeship programmes in Germany. Discussions began for Joint Government Training Centres with Tata of India, Philips of Holland, and Rollei of Germany. This unique partnership approach to workforce training was the first of its kind and was a significant step forward in Singapore's investment promotion programme. Between 1971 and 1976, In Singapore, a Manpower and Training Unit was established to focus attention on industrial training.

The 1980s saw Singapore embarking on knowledge-intensive activities such as R&D, engineering design, and computer software services. Singapore’s Economic Development Board (EDB) co-established institutions of technology with Japan, Germany and France to meet the specialised manpower needs of high-technology industries. These trained
Singaporeans for specialised jobs in electronics and engineering. The EDB administered the Skills Development Fund to encourage the right kind of manpower training.

The Science Park was set up next to the National University of Singapore to stimulate R&D activities in the private sector. The government also set up the Robot Leasing Scheme to offer low-cost financing and technical consultancy to manufacturers who wanted to automate their operations. The government adopted a high-wage policy to accelerate the move away from labour-intensive industries and the attraction to high-technology industries. But wage bills swelled as the world slipped into an economic slowdown, and Singapore slid into a recession.

An Economic Committee (1988), led by Minister for Trade and Industry, Brigadier General Lee Hsien Loong (Now Singapore’s Prime Minister and a Son the former Prime Minister Lee Kwan Yew), reviewed the sources of Singapore's competitiveness. The Committee's most far-reaching recommendation was the introduction of focus on outward trade, streamlined processes driven by ICT and introduces a flexi-wage system where pay hikes would be relative to a company's profitability. The EDB was requested to promote all aspects of economic activity. With the new goal of selling Singapore as a Total Business Centre, the EDB set out to attract international service corporations in the financial, educational, lifestyle, medical, IT, and software sectors.

The EDB identified PC, printed circuit board, and disc drive manufacture as important sunrise industries and worked to attract companies in these areas. As a result, Singapore’s – and South East Asia’s - first silicon wafer manufacture plant opened in the early 1980s. Apple Computer manufactured PCs in Singapore in 1981, and disc drive manufacture began in 1982. The promotion of local enterprises also became increasingly important. The EDB set up the Small Enterprise Bureau in 1986 and shaped a range of assistance schemes to help small local enterprises grow.

The 1990s was a technologically intensive phase. Companies looked to moving up the value chain, and intensified their use of technology to achieve this. At the same time, service industries were identified as a second pillar and engine for growth for the Singapore economy. Manufacturing remained important however, and the EDB strengthened its focus on key industries, namely chemicals, electronics and engineering. Leveraging its strengths in these industries, Singapore also began to develop a biomedical science industry that included the pharmaceutical, biotechnology and medical technology sectors. This helped Singapore's economic structure become diversified and balanced. Today Singapore hosts a wide range of
businesses, particularly in higher value-adding activities. Singapore welcomes talent from around the world to augment its own local skills pool.

At the turn of the century (the 2000s), Singapore increased its focus on knowledge and innovation-intensive activities. R&D is now a cornerstone of the country’s economic development, and in 2006, the country invested more than $13 billion to promote R&D over the next five years. Singapore's goal is to increase gross expenditure on R&D (GERD) from 2.25 per cent to 3 per cent of gross domestic product (GDP) within five years. As a precondition to becoming an information-led economy, Singapore has put in place a strong Intellectual Property protection and enforcement environment, and now ranks first in Asia for IP protection. The National Research Foundation was set up in 2006 to develop, coordinate and implement national research and innovation strategies under the national R&D agenda. To date, most of the R&D activity has been focused on environmental and water technology, biomedical sciences, and interactive and digital media. Today, a strong and established network of public and private sector R&D centres work closely together to commercialise new technologies, processes and products.

From the Singapore experience and perspectives, we can see that Rwanda’s choices of policies are by and large informed by lessons that arise from both 1960s and 1970s Singapore, and are driven from the inside, as after the 1994 genocide, change of political orientation ushered in new “opportunities for policy change and new patterns of political development emerged” while remaining true to new government values and political agenda (Poteete 2009). It is observed that the evidence we have in the case of Rwanda has similarities with the case of Singapore at the time. If these government policies are to be measured against Singapore in any way, then it is possible to see that the ongoing policy decisions based on strong government units and political coalitions can only strengthen Rwanda’s position to defy the odds.

In recent years (2009-10), we have observed Rwanda equally resisting certain policy decisions that are driven by international pressures to ease on press freedoms and allowing for more political arguments (including those based on the ethnic grounds of Tutsi versus Hutus. The current political coalition and consensus building in Rwanda (see Poteete 2009 in the example of Botswana) was not however inevitable, but the Rwandan government’s choice to build a developmental state on the basis of meritocracy, anti-corruption, and reconciliation – essential pillars that drove Singapore’s success (Yew 2000) - can only strengthen the position
of the government to achieve her vision – another successful ingredient of the Singapore economic development model.

**A marathon for Rwanda’s dream**

One measure of a knowledge economy is to review the percentage of the population who have completed Higher Education, with a potential target being 30 per cent (World Bank 2002). Figure 6 below reviews the number of years it will take Rwanda to reach this percentage based on a current enrolment of 44,676 (excluding 452 students in A1 Colleges) students in Higher Learning Institutions. The figure shows the number of years required for Rwanda to achieve the target percentage of the population who will have completed higher education at the current enrolment rate.\(^3\)

<table>
<thead>
<tr>
<th>Target percentage of population who will have completed higher education</th>
<th>Number of years to achieve target percentage at current enrolment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>223</td>
</tr>
<tr>
<td>20</td>
<td>149</td>
</tr>
<tr>
<td>10</td>
<td>74</td>
</tr>
<tr>
<td>5</td>
<td>37</td>
</tr>
</tbody>
</table>

Figure 6: Number of Years Required for Rwanda to Reach Knowledge-Based Economy Take-off Level. Source: Information gathered from Various Governments of Rwanda Reports, 2009.

Following the traditional methods of schooling, the figure six shows that Rwanda would require a minimum of 223 years to qualify as a knowledge-based economy (to achieve 30 per cent of the population with degrees). This situation clearly indicates that the majority of countries that face similar challenges will almost certainly require at least 223 years achieving the current level of developed countries. This reality can only indicate why Rwanda has moved away from the traditional approaches towards development, and is now looking to other models such the Singapore economic development model.

\(^3\)These figures are based on prior [pre-2009?] 2009 completion and enrolment in higher and further education.
Skills audit findings

Available evidence indicates that Rwanda lags behind in human capital development in terms of quantity and quality. The National Skills Audit Report (2009) gives indications on the existing skills and skills gaps in various sectors of the economy in the country as reflected in the findings from the National Skills Audit. The following statistics reflect only the required levels of qualifications without consideration of the quality of labour. The categories are those provided by the International Labour Organisation (ILO).

<table>
<thead>
<tr>
<th>Category</th>
<th>Local experts</th>
<th>Foreign experts</th>
<th>Critical gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managers</td>
<td>1979</td>
<td>30</td>
<td>261</td>
</tr>
<tr>
<td>Professionals</td>
<td>11577</td>
<td>1216</td>
<td>11187</td>
</tr>
<tr>
<td>Technicians</td>
<td>6652</td>
<td>304</td>
<td>9539</td>
</tr>
<tr>
<td>Artisans</td>
<td>67098</td>
<td>1680</td>
<td>38447</td>
</tr>
<tr>
<td>Not specified</td>
<td>1394</td>
<td>755</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>88700</td>
<td>3985</td>
<td>59,434</td>
</tr>
</tbody>
</table>

Figure 7: Estimates of Skilled Personnel by Function and Origin. Source: Skills Audit Report, Government of Rwanda, 2009.

Figure 8: Estimates of Skilled Personnel by Function and Origin. Data gathered from Skills Audit, 2009
Figure 9: Skilled/Unskilled Workers in Large Manufacturing Entities. Source: Rwanda Institute of Statistics, 2008

A National Skill Audit by the Government indicates that in 2009, Rwanda had a 40 per cent shortfall in critical skills, in the short-run. The private sector has the most acute skills shortage - at 60 per cent of requirements. The public sector had a 30 per cent shortfall and civil society only five per cent. Analysed by functions, the skills shortage is most acute in the technician cadres at 58 per cent, followed by professionals at 47 per cent and artisan cadre skills at 36 per cent. Management ranks are reasonably well filled, with 90 per cent of requirements in place; that is, a 10 per cent shortfall. The private sector has a severe shortage of technicians and professionals with only, 17 per cent and 24 per cent respectively of requirements in place.

The resource capacity in both the public and private sectors continues to be one of the major challenges as Rwanda continues to focus on the achievement of economic growth and social progress articulated in Vision 2020 and the Economic Development and Poverty Reduction Strategy (EDPRS). The skills gaps are more apparent in education, applied and natural sciences, ICT and the vocational and technical fields. By and large, the deficits in the public sector are concentrated in the professional cadre, while a shortage of artisanal cadre (i.e. skilled workers) is more pronounced in the private sector. The other notable feature is that the private sector deficit is most acute in the key sectors of the economy; namely, tourism, construction, agriculture, finance and mining. It is against this context that this paper explores viable options of fast tracking Rwanda’s human capital development.
Implications

Human Capital development requires a strong partnership and collaborative, seamless arrangements of all stakeholders (UNESCO 2010). Building and strengthening partnerships and linkages among investors and friends of Rwanda for decision making, planning and resource mobilisation to support human capital development for the country is therefore the most important component of strategic planning, design, implementation and monitoring and evaluation. Figure 10 depicts this crucial partnership.

![Conceptual Framework](image)

Figure 10: Conceptual Framework for Human Capital Development Delivery in Rwanda. Source: The Author

Targeted partnerships and collaborations among key players are critical in fast tracking Rwanda’s human capital development. As indicated in the figure 10 above, the government institutions, higher education institutions, the private sector and development partners have to contribute towards the development of qualified human capital in the country (Rwanda Development Board 2010), depending on their own competitive advantages. This is
because each of the partners would benefit from a functional human capital development programme.

Challenges for human capacity development for Rwanda

Fast-tracking nine years basic education and improving its quality:

Basic education is critical for creating an enabling foundation for human capital development (UNESCO 2010), thus making the country achieve its goal of becoming a knowledge-based and technological-driven society. Currently, however, the sector faces the challenges of reducing drop-out rate from 14 per cent to five per cent by 2015, reducing repetition from 19 per cent to six per cent by 2015, increasing completion rate at primary education from 52 per cent towards 100 per cent, and improving the quality of basic education.

Increasing the number of qualified teachers, lecturers and education managers:

Addressing the shortage of teachers, lecturer and instructors, both qualitatively and quantitatively, at all levels of education and training is a big challenge. Without enough qualified teachers and education managers/technical people, improving the quality of education and training (building a good foundation for human capital development) would remain a mirage.

Bridging the skill gaps in critical sectors of the economy:

The severe shortage of professionals and those with vocational and technical skills constitute a major obstacle to economic growth and social progress in Rwanda. Indicative figures from the Skills Audit report (2009) show that, in the short-term, Rwanda’s economy needs an additional over 60,000 qualified personnel (managers, professionals, technicians and artisans) in both the public and private sectors. Developing a mass of skilled professionals, scientists, managers and technicians, especially in front-line sectors, is a critical challenge in the country because of three issues:
There are no well established *Technical and Vocational Education and Training (TVET)* institutions with the institutional and human capacities to train the human capital needed for the country’s development. The institutions that exist not only have limited qualified instructors, but are offering curricula which are supply-driven rather than demand- (market-) driven. Such institutions also have limited or no equipment and relevant supplies. For the nation to move towards a demand-driven qualification framework, a review of the accreditation process which focuses on outcomes rather than the inputs was implemented. A campaign by the political class and the involvement of the private sector has been promoted.

The existing *institutions of higher learning* are faced with the challenges of coping with demand for human capital development. Most institutions of higher learning operate within overcrowded and deteriorating physical facilities, limited and obsolete library resources, insufficient equipment and instructional materials, outdated curricula, unqualified teaching staff, poorly prepared secondary students and an absence of outreach programmes (for example, university-industry linkage in Rwanda is still very weak if non-existent). e-learning and e-research have not been mainstreamed in such institutions due to limited capacities and competencies among staff and students. In their current state, the institutions of higher learning and training have very limited capacity in supporting knowledge-driven economic strategies and poverty reduction as articulated in the Rwanda Vision 2020.

Currently the existing capacity-building institutions, higher learning institutions in particular, have undeveloped *distance learning/training programmes* that could be used by Rwandans – both the youth and those in the labour force - to upgrade them so they acquire the appropriate skills. Besides, such institutions have not yet taken advantage of the existing established distance-learning institutions like UNISA, Open University etc. to develop a joint programme in distant learning.

**Lack of comprehensive training programme targeting Civil Servants:**

In a developing economy like that of Rwanda, it is critical that the current civil servants are targeted for re-training (in-servicing) to update their knowledge and skills in various
professional areas and work ethics including change management. This is because of emerging critical dimensions of development including globalisation, the ICT revolution and the increasing importance of knowledge as the main driving force of growth.

**Developing competencies in English, Mathematics and Basic Science:**

Based on the development principle of ‘more education for more people’ one of the basic challenges is how to educate and train children and the youth at all levels of education, primary, secondary and tertiary levels, to acquire basic competencies in Mathematics, English, Science and ICT, which are key variables in a knowledge-driven economy. The Government has made a policy decision that English should be used as the main medium of instruction in Higher Education Institutions and Colleges of Education from 2009. The training of a mass of qualified teachers for English, Mathematics and Science is another challenge that requires urgent attention.

**Expanding scientific and technological manpower**

As most Asian countries are already upgrading to high technology and knowledge-intensive manufacturing (OECD 1996), Rwanda is still lagging behind in this area. Due to poverty and limited skills among other factors, there is very limited investment, and partnerships in high technology manufacturing are needed to develop indigenous research and development (R&D) capability (UNDP 2007). Besides, initiatives to expand and upgrade skills in the service sector are still limited all over the country. Currently, the service sector is still small and with obsolete skills and technology. Such a sector cannot cope with international competitiveness, and thus will tend to have lower productivity.

**Offering a competitive reward package, creating enabling working environment for skilled professionals in Rwanda and motivation:**

There is competition for qualified and skilled human capital in the region in either the public or private sectors. For Rwanda to continue relying on imported professionals and retain the ones it has trained, both the public and private sector institutions must offer competitive salary packages and attractive working conditions (UNDP 2007). Currently, most of the institutions and agencies in Rwanda have limited capacities for employing and retaining qualified and experienced professional. For example, since 2006, NUR lost 148, KIE 35 and KIST 309 following the public service reform introduced in 2006 for salary harmonisation. It
is important to note that salary envelope is agreed between government and the International Monetary Fund and it is calculated in combination of the macro-economic situation of the day and as relative to the national GDP.

**Creating mechanisms for extracting value from human capital:**

The Rwandan experience has been to align the requirements of the labour market with the supply side and to analyse whether the human capital that is being supplied by training institutions is what is needed in the labour market. Below issues have been, and continue to be, considered. Areas to be tackled to find ways of establishing and improving the relevance of the human capital output from Post Basic Education Institutions include the following:

- Creating a functional and responsive Labour Market Information System (LMIS) to facilitate alignment of the skills supplied to the requirements of the labour market (link the employers, employees, and academic institutions)
- Participatory curriculum development - The current situation is that the curriculum is not relevant to the needs of the employer; this is demonstrated by the statistic that the employment rate of Technical and Vocational Education Training (TVET) is 25 per cent
- Career guidance centres in skills supply institutions (Post Basic Education and community-based)
- Industrial attachment and internship
- On the job training/in-service training/induction
- Improving the image of TVET
- Funding institutions according to their output
- Enhancing Public Private Partnership in research and development for value addition
- Enhancing dialogue between the human resource suppliers and the labour market consumers to ensure that the needs of the labour are clearly identified and well understood
- Support to entrepreneurship and the establishment of Small and Medium sized Enterprises (SMEs)
- Expanding the purchasing power of the domestic market for skilled human capital
Filling skills gaps in various sectors in the country and thus accelerating the country’s development requires a comprehensive (rapid and long term) national Human Capital Development programme. Based on the analysis of various economic models, especially the Singapore development model\(^4\), Rwanda gave priority to unconventional strategies\(^5\) such as those used by Singapore in the 1970s. Without this, Rwanda’s current annual progress which gives her an average of just less than two years’ schooling among the population aged 25 plus, would require at least 232 years for the country to become a knowledge-based economy. As such, a National Human Capital Development Programme should be developed and anchored in and guided by **four pillars**, which are:

1. **Strengthening the quality of and equity in basic education** (pre-primary, primary and secondary education) as a foundation for further education and training;

2. **Increasing the number of skills** (managers, professionals, technicians and artisans) by investing in: a) integrated and appropriate TVET; b) training and re-training the existing workforce, and c) reformed and expanded higher education programmes, targeting key sectors in the economy, namely Science and Technology, tourism, agriculture, finance and mining, education and health. These are key priority sectors in the National Vision.

3. **Expanding and improving employers’ and unions’ involvement in education and training workers** by promoting greater involvement of employers and trade unions in training and re-training programmes for their existing employees to help them acquire more skills and become adaptable and efficient; and

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\(^4\) Singapore is the only country in the world that has close similarities with Rwanda and has yet managed to move up to become an emerging economy in one generation.

\(^5\) The collective efforts by the citizens built 3700 UNICEF standards classrooms and 12,000 latrines in just three months (November-January 2010), and expanded access to primary education to nine years basic education; introduced a one laptop per child policy and embarked on rural electrification for schools. The Government invested heavily in fibre optics to allow increased speed of data transfer. Universities are delivering distance education; students have access to online electronic journals and open sources, and students are loaned laptops instead of having to purchase them. These strategies expanded enrolment at Universities from 54,158 in 2009 to 62,546 in 2010, an increase of 8,388 students in one year.
4. **Expanding Research & Development (R&D) capabilities (OECD (996) - mainly on scientific, engineering, technological and ICT skills.** Investment in research and development (R&D) programmes, training institutions and industry linkages, and promoting commercialisation of innovations and discoveries.

The following were the **next steps** required to fast-track Rwanda’s human capital development, from the perspective articulated above:

a. **Establish a specialised management and leadership framework for Human Capital Development** to focus on enhancing the composition and operation of a **National Human Capital Development Steering Committee**. The membership should include representatives from government institutions, Ministries: Finance, Education, Labour, Local Government, and Youth, and a representative from public and private universities, the private sector, civil society and faith-based organisations, and members representing the districts.

b. **Developing a fifteen year National Strategy (Master Plan), with costs,** for human capital development. Such a plan should articulate specific **annual** commitments/activities under each of the **Four Pillars** of human capital development articulated above. One area of focus should be investment in ICT Literacy for All. The ICT literacy is critical to allow access to education.

c. **Establishment of a National Human Capital Development Fund:** Each Ministry contributes a percentage of their annual budget to this fund. Development partners, Diaspora Rwandans and other friends of Rwanda should can be mobilised to contribute to this fund. Voluntary additional participation from the private sector should not be ruled out. Innovative and sustainable ways of raising money will have to be developed until such time as the government has a tax base large enough to fund expensive training programmes.

d. **Building and strengthening partnership and linkages among investors and friends of Rwanda,** and also between training institutions and industry. Programmes and schemes such as employer tax breaks in return for training, graduate schemes, knowledge transfer partnerships, innovation funds, and liberalised consultancies at the
Universities to raise additional funds are all feasible options that would yield impressive results.

e. **Establishing a Rwanda Consortium of Universities for Capacity Development:** This is an international strategy and platform that could create opportunities for further education and training of Rwanda citizens in identified priority sectors and fields. The Rwanda Government initiates collaboration with other governments and identifies internationally recognised universities and institutions of higher learning that will form a consortium of institutions, and offer agreed-upon courses to identified Rwandans over a given period.

f. **Launching a massive advocacy agenda for human capital and mobilisation** of the public, Diaspora Rwandans, friends of Rwanda and the international community to support the country’s human capital development initiative.

g. **Setting up a functional monitoring and evaluation system** to track progress being made and evaluating the national human capital development and its impact on the country’s economic growth and social progress. Joint annual review meetings involving various stakeholders including beneficiaries will be institutionalised in the system. A bi-annual government retreat which lasts for a week under the chairmanship of the President has been a norm in the country.

The author provides a descriptive analysis of strategic issues that have or are being considered in the process of human capital development. Furthermore, the following section provides a list of strategic questions that should be considered in the human capital development strategy and policies. We admit that there are no right or wrong answers that can be given to each, but Rwanda’s response to those questions has proven to be a key ingredient in her success story. Rwanda’s model has been driven largely by the desire to move rapidly towards closing knowledge gaps in the priority sectors of the economy. This has led to a stark recognition that human capital is the responsibility of all sectors of the society: public, private and the civil. This reality forges a consensus around each one’s role. The aspect of public-private partnership to deliver human capital development is not a familiar practice but with the example of Rwanda’s success story, developing countries may
need to adopt successful best practices from around the world to allow countries to learn from each other’s challenges and how they moved to overcome them despite limited resources.

The approach (see Figure 10) along with unconventional methods\(^6\) of planning and delivery in basic education has seen the delivery of human capital development have registered impressive results for Rwanda. The statistics from the Council for Higher Education in Rwanda (2011) indicate that access to basic education has more than doubled in the last two years, while higher education has experienced a year on year increase of at least 13 per cent. Twenty two (22) new higher learning institutions have been created in the last 17 years (14 public and eight private). In its 30 years of existence from 1963 to 1993, the National University of Rwanda had graduated less than 2,000 students overall. Today the National University of Rwanda is graduating more than 2,000 students per year. The current 29 higher learning institutions graduate around 15,000 students yearly. The basic education (primary and lower secondary) was registering a total number of just under 240,000 students and completion rates had been very low. Today, this figure has tripled to almost 700 children attending both primary and secondary school while TVET education schools have increased from five to 30 in a period of just under five years — representing a six-fold growth. The standards and quality of programmes has improved too, thanks to various regulations and processes, and increased involvement of the private sector in education planning and delivery.

Issues of development of human capital: Lessons learnt from this case study

Strategic questions for consideration for a comprehensive human capital development strategy should include but not be limited to:

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\(^6\)The Ministry of Education uses “unconventional methods” to describe they strategy they used to build 3,700 new classrooms and 12,000 latrines required to accommodate year nine basic education and deliver a universal free education for all children of Rwanda. The strategy involved using citizens to volunteer one day per week, donate a small amount of money towards the purchase of essential materials and pay for services. The Army and Police provided logistical support and management (transport, security) and expertise in site control. All government Ministers and Executives are given project management responsibilities in every district and are accountable for regional oversight. The overall command and leadership remains under the responsibility of the State Minister of Education. The Ministry of Education provides money for cement, iron sheeting, the purchase of necessary books and the hiring of temporary foreign school teachers from the region while they train local ones. Some conversion courses for degree holders otherwise not in education who need changes in career choices were also involved. This approach reduced required budget and time by two thirds.
1. The issues of short-term training and long-term professional development arise. It is important that these are not seen as two disconnected processes but rather as two processes that occur concurrently, and complement one another.

2. Are you training the right people, with the optimum infrastructure and financial resources to achieve the correct quantity at the correct quality? (This requires a critical examination of the inputs, processes and outputs.)

3. Do you have mechanisms for extracting value from human capital? (This item is detailed later on in this paper.)

4. Retention: are you providing the optimum working environment and remuneration to retain staff?

5. Is there sufficient access to human capital development?

6. Are you providing the needed investment and support for human capital development?

7. Are the training institutions efficient and effective in supplying human capital?

8. Training Faculty – is there sufficient quality and quantity?

9. Is there adequate capacity in governance and management in supply institutions?

10. Are the human capital development programmes relevant and appropriate?

11. Is there well-structured and strong consultancy in research and innovation in Higher Learning Institutions to be able to generate funds?

12. What is the institution’s capacity for financial diversification including the abilities of the institution to generate income and reduce the current over-dependency on government?

13. Is there provision of appropriate and up to date physical facilities and training research and innovation infrastructure in the educational systems?

14. Is there provision of teaching and learning materials for science and technology practical training?

15. Is there a need to address the issue of uneven access and low levels in some areas such as gender disparity in S&T?

16. Is there a need to address the provision of critical courses which currently do not exist, e.g. mining, mineral processing, leather, and energy industry that are Rwanda’s national priority for economic growth?

17. Are there opportunities for attachments, internship and on the job training as well as product design and development in both the private and public sectors?
18. Is there a need to extend social security coverage and healthcare products?
19. Is there a need to enable research for teaching staff in Higher Education to ensure evidence-based teaching?
20. Is there a need to improve the teaching skills of lecturers at Higher Learning Institutions possibly through the introduction of PGC courses, coaching and mentoring, secondment and staff exchanges?

On the basis of the evidence we have presented in this paper on Rwanda’s Human Capital, we can place Rwanda in the Singapore stage (1960s). With a very weak private sector and a highly unskilled workforce, attracting foreign direct investments (FDI) is a priority in order to create jobs and mobilise the private sector to become involved in human capital development, thereby combining the two stages of Singapore’s development -1960, and the 1970s. (Singapore 1970s). In this sense, Rwanda’s vision is to jump at least three decades of Singapore’s development, a challenge that requires a strong mind set, and a well-trained, resilient citizenry driven by a certain self-belief and values, and a political class with discipline and maturity (Yew 2000). Yew (2000) however is known to crack down on most liberties Western countries would never attempt to do. He introduced anti-smoking policies and refused any political fights. Chewing gum, for instance, is also banned in Singapore because of "the problems caused by spent chewing gum inserted into keyholes and mailboxes and on elevator buttons” (ibid 2000.145). Those who debate the role of governments went even further to libel the Style of Singapore as authoritarian and paternalistic, for example (Peebles and Wilson, 2002, p. 7). Interestingly, the later however describe Singapore as one of the freest economies in the world. This may sound surprising. In inference to the views of Peebles and Wilson (2002); that ‘The Heritage Foundation, which still ranks Singapore free economy in the world...and that…. ‘the ruling People’s Action Party (PAP) maintains firm control of all political and economic power’” (Peebles and Wilson, 2002:7); Choon Yin (2003) sees this as maybe surprising, but also concedes that being paternalistic and free seems to appear on different sides of the spectrum. Rwanda is not without critiques, and it has had her own exact type of critiques labelled against the ruling party. Should the government decide to proceed the Singapore way, we will see pro-growth policies, against limited or well controlled freedoms to impose discipline in politics, more investment by government in key sectors, strong disciplinary measures imposed among public servants. The next phase will most likely be the start of an irritating phase pro-democracy advocate in the western-style.
Like in Singapore, this will be on two extremes. For example while some may critiques policies that restrict political freedoms, others will celebrate achievements in areas such as environment and healthcare. Rwanda has introduced a ban on the use of plastic bags due to her drive for a clean, well-protected environment, and has introduced anti-smoking policies. With 60 per cent of Rwanda’s parliament being women, and the value being place on the family, we can see that the Human Capital development experience is just one that is following many other pragmatic policies being implemented.

Rwanda has done very well in the development process of her human capital. However there are strategic questions that have not only been left unattended but they also indicate that the development of human capital for developing countries seeking to make progressive recovery and accelerate economic growth will need to combine the long-term approach with the short-term approach. The long-term approach requires following a certain traditional type of route, while the short-term approach will focus on the immediate needs of the economy. The short-term approach could consider incorporating strategies such as course conversions, international agreements/partnerships, and involvement of the stakeholders to all become more focussed and engaged participants. In order for a country to move forward in building a knowledge-based economy, there are minimum requirements that need to be in place. In the case of Rwanda, a tentative list of priority issues both in the short and medium term was provided.

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