Overcoming Construction Constraints through Infrastructure Delivery

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ABSTRACT AND KEYWORDS

Purpose of this paper

The purpose of this paper is to propose an infrastructure delivery approach that can be used to address contractor transformation challenges and skills deficiencies in the construction industry while optimising the socio-economic benefits.

Design/methodology/approach

A total of 50 young people who were sourced through targeted procurement were trained in construction and given school projects as contractors through the government Expanded Public Works Programme to increase the construction contractor base. An assessment tool was developed to grade contractors. One-on-one meeting between the individual contractor, the Client, Training Institutions, Implementing Agents and Mentors were held monthly to assess and grade contractors.

A number of Further Education and Training and University students were placed with the contractors and Consultants respectively for practical training and to develop artisans and built professionals for the contractors and Consultants respectively.

Findings

The paper suggests that:

- Targeted procurement can be used to transform the Construction Industry
- Assessment of contractors and one on one meetings improved the performance of contractors
- Contractors that performed better were largely those whose post graduate qualifications and previous employment was from the built environment.
• The placement of FET College students with contractors and University students has resulted in their exposure to construction increasing the skills base and ensure that both Contractors and Consultants have a succession plan.
• Socio-economic aspects such as employment creation and the address of diseases such as HIV/AIDS can best be measured when standard reporting tools are enforced.

Research limitations/implications

As the programme for the FET/University graduate students and contractor development is relatively new, future research need to trace the progress of the FET and University graduates, the ability of contractors to get more work through their own means and the impact of HIV/AIDS campaigns on the families of workers.

Practical implications

The findings provide a basis for the construction industry not only to build and provide physical infrastructure such as schools, clinics etc, but to use the processes of developing as a tool to address both the construction and the socio-economic challenges.

Keywords

Infrastructure Delivery, Targeted Procurement, Socio-Economic, Skills,

1. INTRODUCTION

The purpose of this paper is to propose an approach on how to achieve socio-economic aspects through the development of infrastructure to contribute towards achieving the Millennium Development Goals (MDGs). The aim is to share experiences with those who are grappling with poverty and to assist governments that implement infrastructure in packaging their assistance to not only achieve the intended physical infrastructure, but to use the infrastructure delivery processes to achieve favourable socio-economic conditions. Developing nations are constrained by a number of deficiencies such as underdevelopment, lack of requisite skills to implement their infrastructure and inadequate construction capacity. The Millennium Development Goals (MDGs) provides an international framework to eradicate poverty and its manifestations.
This paper explores the extent of poverty in both the developing and developed nations. It covers the challenges facing the South African construction sector regarding skills and the ability to deliver especially on the contractor level. The MDGs which provide a framework for addressing poverty is explored. It is concluded that by training, placing students in the built environment and developing contractors, developing nations can build their skills base. The study indicated that preferences for contractor development should be with those whose post graduate training has been in the built environment, and have had previous exposure in the construction industry as they are likely to succeed. It is also concluded that some of MDG indicators such as the reduction of hunger through optimizing employment creation by the use of labour based specifications, parity between men and women through procurement targeting, arresting and managing the spread of HIV/AIDS by dictating the use of HIV/AIDS specification in construction works can be achieved through infrastructure delivery processes. It is also concluded that by dictating a prescribed standardized reporting framework throughout the various reporting structures, the intended infrastructure objectives can be achieved.

2. CHALLENGES AFFECTING DEVELOPING AREAS WITH REFERENCE TO SOUTH AFRICA

2.1 Poverty Challenges Facing the Poor and the Millennium Development Goals

Developing areas are confronted by the scourge of poverty that is beyond the income means of most developing nations. The African Development Bank (2004) reported that close to 50% of people in Southern Africa, who reside largely in rural areas, live in poverty levels of less than $1/day. Sanchez et al (2005) reported that 852 million people, mainly in the developing world, are still chronically or acutely malnourished. Most of them are in Asia, particularly India (221 million) and China (142 million). Sub-Saharan Africa has 204 million people in poverty and is the only region of the world where poverty is increasing. This calls for various strategies to counteract this, of which one of them is investment in infrastructure with the aim of addressing the poverty issues. These manifest themselves in unemployment, and lack of requisite skills amongst other things. The poverty challenges also offer opportunities on the other hand. Watermeyer (2006) reported that recent forecasts for the demand for new infrastructure expressed at the American Society of Civil Engineers’ convention in Baltimore, 2004, indicated that approximately 80% of the world’s new
infrastructure in 15 to 20 years time will be constructed in developing countries.

The global fight against poverty was enhanced by the 189 countries who adopted the Millennium Development Goals (MDGs) (United Nations 2000). This means that the Poverty Reduction Strategy Papers (PRSPs) which Stewart and Wang (2003) described as policy documents produced by borrower countries outlining the economic, social and structural programmes to reduce poverty, that they claim explicitly incorporate participation into the International Monetary Fund/World Bank (IMF/WB) lending framework for poor countries had to be adjusted to the (MDGs). The African Bank (2004) in its policy noted that PRSPs provide an opportunity to implement the new poverty policy, as they represent an effective mechanism for channelling domestic and international resources for poverty reduction in a coordinated manner. The United Nations Development Programme (UNDP) (2008) noted that in Ethiopia, as in nearly 70 other countries, the PRSP is becoming the operational framework to translate the global MDG targets into national action. Watermeyer (2001) remarked that in the absence of an environment that attracts foreign investment and promotes the development of a domestic investment, many countries become reliant on foreign donor funds for up to 50% of their national budgets. Thus, it is critical that the budgets from donors and domestic investments be linked to specific MDG indicator deliverables.

The review of the Eastern Cape Provincial Development Strategy (PGDP) (2003) indicates that there are at least seven common MDG indicators with resolution 55/2 of the United Nations Millennium Declaration, adopted by the United Nations Assembly during of the 8th plenary session on the 8 September 2008. It can be concluded that the Eastern Cape Provincial Government PGDP is in line with the MDGs which form the accepted national and international core framework for strategies to reduce poverty. Thus, every policy development, implementation should be aligned to achieving the MDGs. This paper is based on a case study on implementing MDGs in the implementation of infrastructure in the Eastern Cape.

Given the MDGs intention to fight poverty, many donor nations are linking their funding of infrastructure to the achievement of socio-economic goals. Nahusenay, a World Bank Senior Transport Specialist quoted by Pringle (2009) noted that bilateral donors have lost interest in investing in road infrastructure in Africa, as they are not seeing the benefits of such investments because not enough employment was being created and that such investments were not helping to improve rural access and alleviating poverty. It can be concluded that it is critical for infrastructure provision to demonstrate that it meets the objectives of the MDGs.
2.2 Challenges Regarding Skills in the Construction Sector

Perry (2009) quoted the Organization for Economic Cooperation and Development, reported that foreign investment in Africa reached $48 billion, overtaking foreign aid for the first time. The same report mentioned that Chinese engineers are at work across the continent, mining copper in Zambia, and cobalt in the Democratic Republic of Congo and tapping oil in Angola. The implementation of this infrastructure is not done by Africans, indicating both skills constraints and the contracting ability. Watermeyer (2001) noted that sustainable development in the context of developing countries should ensure that the roles of “outsiders” must be time bound and the scope of assistance limited to the provision of alternatives and, if necessary, towards the provision of “seed capital”, including human capital. The skills constraints need to be addressed as part of eradicating poverty, so that it’s not the Chinese or other foreign skills that come and implement infrastructure to the developing world, but the indigenous population as they may know better how they can be able to use the infrastructure implementation as a tool to address poverty. This means that outsiders should be given timeframes to transfer knowledge to the indigenous groups.

The South African economy expanded for 20 consecutive quarters - the longest period of continuous growth for over fifty years (Manuel, 2004). This growth is a result of the general consolidation of policies that have been put in place after the first democratic elections in 1994. Although the current financial crisis has affected growth, South Africa is to a certain extent shielded from its effects by amongst others its infrastructure expenditure. According to the South African State of the Nation address, Motlanthe (2009), the South African government would increase its public investment programme whose value is R690 billion for the next three years. However, the national projected expenditure is dampened by the shortage of skills. According to the Business Group Secretariat (2004), the Construction sector is at its lowest level of capacity since the early 1960s. The explanations are many and varied. The Construction Industry Development Board (2004) gave the aspects of capacity erosion within the industry as:-

- The low tech image of the industry together with deteriorating profitability which is discouraging bright young people from entering the built environment professions preferring the “lifestyle” careers in the Information Technology and financial services sector.
- The potential intake to tertiary education is restricted by the low percentage of matriculants with higher grade in mathematics and science.
There is a direct correlation between skills and jobs, Behar (2006) reported that most skill types complement unskilled labour such that a rise in skill supply would boost demand for unskilled labour. Thus the provision of work and the presence of skills can be regarded as two sides of the same coin. However, the greatest concern is the fact that a high standard of quality in major engineering and commercial work is reliant on an aging skills base, with much of the industry’s activity lying on semi-skilled workforce (CIDB 2004).

2.3 Shortage of Skills within South African Skills Sector and Government State Owned Enterprises

The South African local government which is represented by the District and Local Municipalities has recently seen an increase in community protests due to the lack of service delivery. There might be a correlation between these and the acute shortage of skills in this sector. Lawless (2005) who conducted a study in the local government sector found that there are no civil engineers, no technicians employed in 34% of South Africa’s local municipalities and 9% of district municipalities, and only 19% of local municipalities and 53% of district municipalities have at least one civil engineer.

The Eastern Cape Department of Public Works (2005) in South Africa is operating at about 29% capacity with respect to professionals from the built environment such as Architects, Civil Engineers, etc and 38% with respect to artisans such as bricklayers carpenters etc. The worst affected areas are those from the poorest and rural regions who were close to 2% capacity and 0% in professionals and artisans respectively. Various advertisements on vacant posts have yielded no response from the built environment professionals. In the midst of these shortages, Public Sector entities such as the Coega Development Corporation, which has attracted over $30 billion dollars in investment, (Coega, 2005) indicated that it is in dire need of some 16 000 artisans.

The shortage of skilled personnel requires that government has to acquire the planning capacity elsewhere to fulfil its mandate. Although there has been dwindling of skills in general, some of the skills have moved to the private sector, hence the logical need to use consultants to complement government. Watermeyer et al (2009) (quoting Terblanche (1971) and Lawless (2005) compared the distribution of engineers and technologists in South Africa in 1967 and 2005 as shown in Table 1. as follows:-

Table 1: Change in distribution of technologists and engineers in South Africa over time
The lack of skilled personnel and the enormous task of ensuring service delivery mean that infrastructure projects are largely planned and conceptualized by consultants as Table 1 suggests. The disadvantage of this is that the government might lose its strategic control as consultants might prioritize what is best for them. The other aspect is that consultants are not individually involved at high level planning as the socio-economic aspects are conceptualized at a political and government level, where Consultants are not represented.

To mitigate against this challenge, it has to be realized that the outcomes of the measure of any objectives are determined at the planning level and reflected at the reporting level. What is not measured cannot be achieved. Mbande (2004) states that the challenge facing the Eastern Cape Government, South Africa is that although policies are in place, there is no effective prescribed monitoring and reporting mechanism. This denies the policymakers the opportunity to review the information that ought to come out of projects and to revise and align their objectives and targets. As a consequence, the Eastern Cape Provincial Treasury (2004) prescribed to accounting officers and authorities throughout the provincial government that they should provide the Treasury with monthly reports in a prescribed format as part of measuring the fulfillment of their objectives. To ensure that consultants align their work to achieve government objectives, government has to define the end state by prescribing a standardized reporting format/template. The role of government would thus be to articulate its objectives, define the key performance indicators and prescribe the frequency and the template on how it requires the information to be outlined.

However, reliance on the use of Consultants should be temporary, government in general has to use its budget and buying power place and mentor students as part of experiential training to build their capacity.
2.4 Capacity Constraints in the Construction Sector

According to the CIDB (2008), the South African Building and Investment sector employs about 450,000 people in the formal sector and 320,000 people in the informal sector, which amounts to R158.6 million per year. The recognition of the ability of the construction sector to create more jobs is recognised by the President of the United States of America who promised to develop more Public Works programmes to create more jobs (Allen and Martin (2008). Milford et al (2008) noted that the South African construction industry is characterized by a few (5% of the total number of companies) reasonably large, internationally competitive companies which are currently undertaking about 84% value of the public sector construction work in South Africa. According to the CIDB (2007), the black or indigenous ownership is largely in lower construction Grades 1 to 6 that share about 16% of construction work value which calls for measures to transform the industry by developing more indigenous contractors towards a higher grading. Comparing with other countries, Watermeyer (2004) reported that the activities of black Zimbabwe contractors accounted for less than 1% of the construction work available 10 years after independence, despite measures being adopted to provide contractors to such contracts. The South African Construction Industry has to develop strategies to ensure that the bottom level contractors that are largely black owned are developed to move to the top so as to be able to share the large part of the construction budget. A large effective contractor base will increase competition, thus reducing the cost of implementing infrastructure. This capacity constraint has to be addressed as part of socio-economic considerations. Watermeyer (2001) reported that targeted procurement, a system that utilizes procurement as an instrument of policy which provides employment and business opportunities to target groups and labour based which describes production processes and technologies that are designed and managed so as to promote employment creation with predetermined socio-economic benefits, should be used to develop and create contractor base that is largely indigenous. These targeted procurement and labour based will optimize employment and capacity building to target groups such indigenous people, women and youth as part of meeting the MDG indicators.

The Economic Commission for Africa (2004) reported that Africa’s poor labour force, which is not very healthy and not well educated, is a major source of its low competitiveness. Lawless reported that HIV/AIDS has largely affected both the semi-skilled and unskilled labour force in South Africa. This calls for decisive actions to be taken to counteract the effect of HIV/AIDS and general education by the Construction Industry to
systemically complement the national education and health strategies. The South African government has developed HIV/AIDS specification (www.dpw.org.za) as part of construction which should form part of any construction work, in meeting the MDG goals.

While Askari (2004) noted that the problems of today’s developing economies are poverty, financial instability, debt and institutional deficiencies of monumental proportions, it can be concluded that regarding infrastructure, these institutional deficiencies relate to the skills shortages, employment creation, unhealthy workforce, lack of contracting and consulting ability, which any infrastructure funding donor has to address within the MDG framework.

3. METHODOLOGY ADOPTED IN THE PAPER

The approach adopted in this paper is based on reviewing some case studies. These studies are covered below briefly:-

(a) The Eastern Cape Department of Public Works (DPW) placed 422 students that passed the national qualification authority standard N2 in bricklaying, Carpentry, Painting, Electrical Engineering, Mechanical Engineering from Further Education and Training (FET) colleges with its own teams over a period of two to three years to develop them to full time artisans. The aim was to train, mentor and take them to the government skills testing centre in Olifantsfontein, Gauteng Province, South Africa.

(b) On the other hand, Coega was responsible for developing 50 contractors as part of an Expanded Public Works Programme (EPWP). The students got in the programme through advertisements as per the DPW guidelines DPW (2004) on targeted procurement. No involvement in infrastructure or contracting was required from the students. After short-listing and writing of the tests, the students were trained for two months in technical, administration, financial and the regulatory environment using the Construction Sector approved syllabus. They were then each awarded contracts initially of about R1.5m in Phase 1 building a three classroom block, an admin office and a storeroom. The students were promised that those who performed better would be given bigger programmes of R2m and R10m work in phase 2 depending on their phase 1 performance which was based on labour Intensive methods and technologies for intensive construction works (www.cidb.org.za) that included HIV/AIDS specification (www.publicworks.gov.za). During construction, monthly meetings were held between each contractor with a panel from Coega Development Corporation, Mentors, Consultants and Training Providers. The Consultants would present their reports based on technical, scope, time and ability to
take and execute instructions and quality to the meeting. The mentor would also present their separate report based on finance, quality, and administrative ability. The Training Service Providers would present their report based on contractor translation of the training syllabus to work. The contractor would be given the chance to respond to the assessment and do his/her assessment. An agreed scorecard where each participant with the exception of the contractor would score was developed and amended from time to time. The four scorecard categories are summarized as follows:-

- Business Administration that outlined the general business and site administration, adhering to the Regulatory environment such as Occupation Health and Safety Act (OHS), taxes, etc.
- Financial management that included understanding and implementing measures to ensure that expenditure is within the timeframes, less reliance on overdraft, understanding and knowledge of profit areas and actions taken to on site to improve/optimize the financial situation.
- Project management which included quality, interpretation of drawings, managing the foreman and general implementation of technical aspect of the project on site.
- The overall performance regarding progress on site which included the contractor's ability to take instructions, continuous improvement compared to the previous assessment and time spent on site. This assesses whether the contractor can be able to execute work if it were to be left on its own.

The panel graded each contractor according to poor, fair, good and excellent. The panel agreed that a candidate would score say ¾ (3 being scored as poor, fair, good, excellent in three categories out of 4 categories, then the candidate is poor, good, fair, excellent). Any scores in between would be extrapolated and the panel would agree on the nearest score.

(c) A standard reporting template that was issued in terms of Eastern Cape Treasury Notice 38 of 2004 was adhered to in the monthly monitoring of the projects. Monitoring included two site meetings per month and a compulsory monthly monitoring meeting. The Consultants reported as per the template on progress regarding budget/expenditure, Time, Quality and socio-economic aspects including employment regarding the gender/youth, training on HIV/AIDS and Occupational Health issues, progress on EPWP contractors, and placement of FET College and University students on a monthly basis. The prescribed templates were such that both the Consultants and Contractors had their own reports with the Contractors submitting names of people employed and trained including wage rate per day, age, gender and disabled. The Consultants reported on numbers
employed, trained and placed students in addition to Time, cost and quality. These reports were monitored, evaluated and acted upon by the panel.

4. RESULTS OF THE METHODOLOGY ADOPTED IN THE PAPER

4.1 Placement of FET College Students and Professionals

Bricklayers constituted about (38%) of the placed students, followed by carpenters (28%). These are from the fact that Eastern Cape, South Africa is a rural Province. The people who chose these trades do so on the understanding that they would not only depend on formal jobs, but would also be able to be contracted by individual families to build their rural houses.

The plumbing (14%) and electrical (9%) enrollment can be explained by the fact that these services are beginning to be widely needed by both the urban and rural communities. The South African government has since the advent of democracy ensured that rural communities have access to water and electricity. It is then on the understanding that this infrastructure will need to be serviced and repaired, hence it is anticipated that there will be a growing demand of these services.

About 13 percent of students absconded/resigned students which could be attributed to the lack of proper supervision by the Department of Public Works (DPW), lack of powers by the regional staff as the disciplinary issues are handled at Head Office which is not as fast as it would be required regarding disciplinary issues. The lack of mentoring skills by Department of Public Works supervision staff also contribute to the disillusionment of the students.

The high failure rate (97%) of these students can be attributed to the fact that the students have been placed in projects for two years instead of the three planned, lack of systemic mentoring, non-alignment between what is taught at the college and lack of equipment and requisite skills at such colleges amongst others. While the lecturers are trying, these colleges are rural; as such they struggle to attract many senior experienced lecturers. Some of these students arrive at the DPW depot, unable to identify equipment they are supposed to use. The lack of mentoring skills at the DPW due to the fact that the experienced artisans that are responsible for the students have never been trained as mentors and there is misalignment between what is expected at Olifantsfontein (where students are tested) and what is thought at FET Colleges also contribute to the failure rates. A closer look at the qualification of those who have passed
indicate that they have on average passed grade 4 at least, meaning that the qualification for work purposes need to be raised from N3.

The major concern is that despite the fact that these students passed some six months to a year ago, only one is employed points to systemic issues within the South African economy. In the light of the pronounced lack of skills in the economy, 29 artisans should have been employed by now. An urgent marketing drive is needed to ensure that this happens.

The students at Coega have just been placed over the past six months, thus no meaningful analysis of their progress will take place.

4.2 Contractor Development

The results of contractor analysis taken in July 2008 and December 2008 are as follows:-

4.2.1 Effect of Contractor Grading

The monthly grading of contractor learners resulted in them competing with each other leading to innovation. For instance, one of the learner contractors motivated by the desire to increase productivity and achieve excellent results used to buy bread for his employees every Monday after there had been a payment on the previous Friday. This was done in order to lure his workers back to work on a Monday, otherwise they normally would commence on Tuesday. It soon became clear that the foreman was playing a critical role in the business. This led to the contractors spending more time looking for the right foreman, sometimes giving offers to foremen from large construction firms. One contractor terminated the services of about three foremen in a space of four months, until she was satisfied about their performance. This assertion of her authority and ownership of activities on site became the norm on every site. As a result, on average contractors assessed as excellent increased from 14 to 26 percent in July and December 2008 respectively.

There was a good correlation between a good foreman and the progress/quality of work. There was also a correlation between the Consultant and the performance of the contractor. Consultants that were not spending more time on site in guiding the learner contractor had their contractors scoring lower than those that were spending more time assisting the learner contractor. As some of these areas are remote, there was a noticeable tendency of some consultants not spending more time on site in these areas. It was easier for contractors closer to Consultant and mentor's offices to continually visit the consultants and mentors, than those who were in remote areas. This called for extra efforts to be put in place.
and a consultant scorecard be developed that would be graded by contractors.

4.2.2 Male and female performance

Overall, about 30 percent of contractors were female. While there were no discrimination practices, the low level of entry for the female contractors could be attributed to the past history of dominance by males in the construction sector. Although there had been a deliberate minimum prescription of female involvement in the programme, not many women were accepted. Moving forward, the government need to make a deliberate effort to make the programme biased towards women. Of these female contractors, 7 percent attained excellent results as opposed to their male counterparts who obtained 49 percent. Overall, the female performances were 20 percent poor as opposed to 9 percent of their male counterparts. However, 73 percent of the female contractors were considered good as opposed to the 34 percent of their male counterparts. This indicated the ability to learn faster when given tasks. This trend was consistent in Business Administration where 13 percent of female and 19 percent of males were considered excellent. An overwhelming 80 percent of female contractors were considered good as opposed to 40 percent of male counterparts in Business Administration. In project management, the trend continued as in overall approach and business administration where 7 percent of female contractors were considered excellent as opposed to 46 percent of males. Overall, 67 percent of females were considered good as opposed to 43 percent of their male counterparts, while 13 percent of the female contractors were considered poor as opposed to the 9 percent of their male counterparts. In conclusion, the female contractors tended to crowd around being good as opposed to their male counterparts that tend to be consistent in being good and excellent. The largely overall good effect (between 67 and 80%) of females can be explained by the fact that not many of them were familiar with the construction work. Thus, learning has been gradual as opposed to the male counterparts that have been in the construction business for a longer period. The reason for the large number of male contractors in the good/excellent category can be attributed to their choice of qualification and work. About 70 percent of male contractors had a post matric qualification from the built environment as opposed to the 50 percent of their female counterparts. Also, 28 percent of male contractor’s previous employment was from the built environment as opposed to the 17 percent of their female counterparts. The technical qualification from the built environment and previous work within the construction sector probably explains the reason why so many male contractors are within the excellent
and good category as opposed to their female counterparts. It is recommended that the development of both the male and female contractors should largely be drawn from those whose qualification and/or exposure is from the built environment.

4.2.3 Qualifications and Previous Place of employment

Overall, 52 percent of contractors had post matric qualification from the built environment of which 42 percent were assessed as excellent, 50 percent good and 8 percent poor. This means that when choosing to develop contractors, the success rate is likely to depend on whether the individual had access to technical education and exposure. Of the 16 percent contractors that had post graduate qualification that was not from the built environment, 25 percent excelled, 50 percent considered good and 25 percent were considered poor. Those who did not have the technical background would be considered to be less successful than contractors with technical background as they are not familiar with construction; however, those with the post graduate qualification not from the technical field have shown to be fast learners judging by the 50 percent that are considered good and 25 percent excellent.

On previous employment, 22 percent were emerging contractors, of which 45 percent were considered excellent, 36 percent good and 18 percent poor. The results on excellent and good from previous emerging contractors are considered low considering that these contractors had run their businesses before and should actually be better. The explanation for the low score might lie in the fact that most of them might have just registered their businesses and as such were at Grade 1 of the CIDB before being taken in the programme. The other explanation is that those who were excellent were not getting the opportunity as the Grade 1 CIDB level is crowded, thus not allowing those with potential to express their full potential. The 45% excellent score is the highest in the whole sample followed by those who were previous employees with technical experience that constituted 18 percent of the total contractors. In this group, overall 44 percent achieved excellent results, 56 percent were good and 0 percent poor. This is largely because 78 percent of this group had a technical post matric qualification. These results are expected from a group that had familiarity with construction as employees. Considering further analysis, 55, 27 and 18 percent of those with emerging contractor background were considered excellent, good and poor respectively in Financial Administration compared with 56, 33 and 0 percent of those who were employees with technical experience with excellent, good and poor. Yet, contractors who were unemployed constituted 14 percent of the sample
and those who were employees without any technical qualification constituted about 12 percent. Those who were unemployed were 43 percent excellent, 43 good and 14 percent poor. The reason for positive nature of these results is that 86 percent of the unemployed had a technical post matric qualification compared with 14 percent who had a non-technical post matric qualification. This also indicates that action needs to be taken to deliberately place and nurture the technically qualified unemployed graduates as their potential lies dormant. For a country that has committed R700 billion on infrastructure, with a skills crisis, the unemployment of graduates from the technical field cannot be justified. The overall score for those who were employees without any technical background was that 17, 50, and 33 percent were considered excellent, good and poor respectively. This means that for the future plans, any contractor development has to be biased towards those with the technical qualification and those that have worked in technical jobs.

4.3 Socio Economic Aspects as part of Standardized Reporting on Infrastructure

The results of the 50 schools that Coega has implemented are outlined in Table 2 as follows:-

<table>
<thead>
<tr>
<th>Category</th>
<th>No of employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>People Employed</td>
<td>1502</td>
</tr>
<tr>
<td>Women employed</td>
<td>375</td>
</tr>
<tr>
<td>Youth Employed</td>
<td>738</td>
</tr>
<tr>
<td>Disabled People</td>
<td>23</td>
</tr>
<tr>
<td>Training – HIV/AIDS and OHS</td>
<td>1033</td>
</tr>
<tr>
<td>FET/University Interns placed</td>
<td>54</td>
</tr>
</tbody>
</table>
Out of a total of 50 schools, about 25 job opportunities were created per school. The employment of women, youth and people with disabilities, although they are outstripped by men, needs to be encouraged. The monthly monitoring meetings provided a platform to advocate for their inclusion and to question and address the traditional indigenous stereotypes some of which stated that women are unable to push wheelbarrows etc. The HIV/AIDS training also provided another front to tackle this scourge. In deep rural areas, the contractors encouraged foremen especially those that are affected by HIV/AIDS to open the day by preaching to the workers about HIV/AIDS. The HIV/AIDS training given on site workshops included teaching workers how to use condoms. However, the message given on site needed to be the same as the clinic, thus a two hour visit by the nurses to the site was encouraged and pursued.

The use of targeted procurement has ensured that the 50 contractors from the indigenous population are fully fledged businesses, while artisans and students from the built environment get practical experience to take over the construction industry. About 13 percent of them stand ready to move to higher grades due to their excellent results, and this is possible due to targeted procurement.

The use of Labour intensive and HIV/AIDS specifications have also ensured the optimum job creation for both men and women with gaps such as stereotypes regarding women working on labour intensive projects and gaps between the HIV/AIDS messages on site and in clinics identified and acted upon. These contribute in meeting the MDG indicators on employment equity and HIV/AIDS.

The statistics in Table 4 is possible as all the projects used a standard reporting template which covered Budget expenditure, cash flows, time, quality and demographic information such as people employed according to youth, women and disabled as well as people trained. On the other hand the contractor template had information that had the names of people, their age, gender and wages paid. This also covered project related information and was enforced by the tender approach which stipulated that if the report is not submitted there would be no payment. It is in this context that the enforcement of reporting ensures that everyone focuses on reporting on the outcomes of the objectives.
5. CONCLUSIONS AND RECOMMENDATIONS

Achieving MDG’s has many dimensions; multi-faceted interventions are required to achieve them. Plans at achieving these targets have increasingly become tied to access to skills development. The development of technical skills provides such a conduit. It pushes policy makers to design interventions that uplifts society

This involves –

- identifying infrastructure gaps that affect the development of society
- deciding on specific steps to mobilise skilled resources
- development of Small Medium Enterprises and
- removing the obstacles that prevent society from achieving MDG’s

The poverty that the global community is grappling with manifests itself in many ways such as the lack of requisite skills. While there are positive news relating to the fact that investment exceeded foreign aid in Africa, the infrastructure investment is still implemented by foreign workers. The lack of skilled personnel in South Africa within and outside of government is a barrier to the ambitious plans by the government that has declared its intentions to invest in infrastructure. This also affects the planning and implementation of government programmes which necessitates that Consultants be involved as they have the resources and capacity in planning and implementation. The challenge with the Consultants is that they do not have the political insight and as such their assistance might not help in achieving the intended objectives. To counter this it is concluded that the authorities dictate the reporting templates that defines the end state. It is also concluded that the use of Consultants should be seen as a temporary measure while the government is developing its own requisite skills.

The challenges that confront organs of state requires them to use their resources, buying power to develop the requisite skills in the short, medium and long term to ensure that they meet their objectives, while addressing the poverty issues. The MDGs provide a framework for the global community to address poverty. The Eastern Cape PGDP is aligned to the MDGs, and it can thus be concluded that its fight against poverty is part of the global effort.

It is concluded that the process of developing infrastructure should not only be the physical product, but students such as those that are artisans and those from Universities should be placed in infrastructure projects under experienced and trained mentors until they qualify as professionals. The development of contractors together with skills development, and the employment of the targeted groups, the training of the workforce in
HIV/AIDS can be done simultaneously in one project. Contractor development candidates for both men and women have to be largely drawn from people who have had technical qualification and/or exposure to construction related activities as their chances of success are greater. It is concluded that this approach can address the challenges confronting the infrastructure provision while addressing the issues of poverty in contribution to the Millennium Development Goals.

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