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BENCHMARKING BEST PRACTICE TO ACHIEVE A COMPETITIVE ADVANTAGE IN THE SOUTHERN AFRICAN CONSTRUCTION INDUSTRY

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ABSTRACT

Recently, the South African construction Industry formulated a construction industry policy whose vision is to promote stability and international competitiveness and generate new industry capacity for development. Establishment and promotion of "best practice standards" has been identified as a key driver of work process innovation and enhancement of competitiveness.

Thus, the Southern African Construction Industry is awakening to the globalisation challenges such as technological advancement, constraints in international capital, restructuring and mergers and international competition. Consequently, the social, technical and business architecture is realigning to meet the challenges of globalisation. An e-commerce revolution coupled with paradigmatic business process re-engineering is well under way.

This paper highlights the construction industry's initiatives that have taken place in furtherance of the policy and vision and it provides an insight into capability and capacity of the industry and its preparedness for international competition. A linkage between best practice performance and competitive advantage is established. The paper concludes that benchmarking international best practice performance can create a competitive advantage in the present globalised industry.

KEYWORDS

Southern Africa, Globalisation, Challenges, Benchmarking, Best Practice Standards, Competitive Advantage.

1. INTRODUCTION

Africa is the World's second largest continent after Asia, covering a total area of 30 million square kilometres with 48 mainland and 6 island states and an estimated total population of 700 million. (www.Mbendi.co.za, 2000)

The continent has, for ease of geographical identity, been divided into North, South, East, West and Central regions (Mbendi Website, 2000). The Southern Africa (SA) region, the area being considered here, is strategically located between the South Atlantic and the Indian Oceans. It comprises of twelve inland countries that include Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe

and 1 island state of Mauritius. The region has a combined land area of 9.1 million square kilometres and a population of about 190 million.

The region is a source of strategic minerals such as platinum, gold, cobalt, diamonds, copper and manganese as well as petroleum. Recent political and economic changes have enhanced the opportunities for growth and development. A particularly promising development is the regional collaboration and integration led by the Southern African Development Community (SADC), which aims to create a free trade area by 2004 (SADC, 2001). The region has a huge economic potential, with the majority of countries pursuing liberalisation via privatisation aimed at private enterprise development, accessibility and availability (www.Mbendi.co.za, 2000)

1.1 The SA Construction Industry

With a combined Gross Domestic Product (GDP) of US$176 Billion, this region is one of the major economic blocks of Africa and remains one of the largest unexploited markets in the world (www.Mbendi.co.za, 2000; SADC, 2001).

The Construction Industry, which comprises both the Building and Civil Engineering sectors, plays an indispensable role in the SA Economy. It provides the necessary physical infrastructure that is fundamental to economic development. Construction contributes about 50% to Gross Domestic Fixed Capital Formation (GDFCF) and 5% of GDP. The construction Industry offers significant job and business opportunities and employs about 2 million people. Construction business volume in the region is about US$50 Billion (www.Mbendi.co.za, 2000; DPW White Paper, 1999; SADC 2001). This is huge by African standards.

The construction industry output in SA, being a developing region, is up to one half in Civil Engineering projects such as roads, railways, ports, dams, power stations, drainage projects or water supplies and the remainder is in building work that provides facilities such as hospitals, health centres, schools, offices, factories, agricultural buildings and hotels. The rest is in commercial housing and maintenance and repair. The products are heterogeneous in terms of inputs, technology, standards and end use.

While there are many economic characteristics that the SA construction Industry experiences in common with other sectors, there remain a number of features that set it apart. It operates in a complex project specific environment. A wide range of legislation, regulation and forms of contract and subcontract impacts on it. It is labour intensive, dynamic and highly competitive. Demand is highly volatile and largely emanating from the public sector. The impact of declining demand and increasing volatility has been the wasteful loss of skilled personnel who have to contend with low wages and the capacity of thousands of construction companies that are unable to survive. Additionally, demand volatility has led to reluctance to invest in improved health and safety, productivity and quality, training, employment practice and environmental protection (White Paper, 1999). These hamper the industry's competitiveness.

The capacity varies nationally with each country being served by a wide range of contractors, from the briefcase contractor to the huge conglomerates with arms in all the countries in the region. Some of the large ones are world leaders in their areas of specialisation.

1.2 Industry Capacity and Capability

Some of the projects undertaken during the last five years show that SA construction firms are well on their way to attaining world-class status. For instance, the Caesars Gauteng (Casino and Leisure Resorts), is believed to be a world first, with an area of over 14400m^2 featuring high levels of quality and exceptional interior and exterior design elements. It required designing 35 000 cubic metres of reinforced and post tensioned concrete with slabs supported by beams spanning up to 20m to provide a column free environment. Joint venture contractors, a consortium of local firms, accomplished this project in a record time, (Construction World, July 2000).

Similarly, the Johannesburg International Airport (JIA) domestic terminal required the placing of 44 000m^3 of concrete, erection of 92 000m^2 of formwork and fixing of 3400 tonnes of reinforcement. The terminal provides 80 000 m^2 of floor space distributed over five floors. The design complies with the International Air Transport Association's standards. Again this project was constructed by a consortium of local firms and finished in record

time (Construction World, March 2001). These are just a few of the major projects undertaken recently to demonstrate that the SA industry has the capacity to take on some very challenging projects.

Despite what appears to be an impressive performance by local firms on one hand, there is on the other hand the existence of small firms still struggling to achieve recognition. The leading contractors who have shown superior performance are largely subsidiaries of world-class conglomerates. As the industry leaders continue to dominate the industry, new entrants, largely indigenous contractors suffer client discrimination and a wide range of industry impediments. Some of the fundamental impediments are:

- Interconnected structural problems associated with declining demand and the volatile nature of construction demand.
- Flexible labour practices leading to unregulated labour only subcontracting which in turn impacts negatively on a wide range of performance factors such as labour relations, human resource development, output and quality - all of which add to the spiral of rising costs.
- Artisan, supervisory and management capacity has diminished over the years.
- The divide between civil and building courses content and structuring of training impedes portability and industry skills formation.
- The development of the emerging sector is frustrated by its inability to access finance and credit as well as management training.
- Delivery bottlenecks resulting from inefficient procurement functions.
- Inadequate fiscal capacity of the clients and their limited ability to mobilise finance and initiative.
- A regulatory framework that inhibits innovation and initiative and disempowers the emerging sector (White Paper, 1999)

The individual governments have embarked on programmes aimed at addressing these issues. notably, the affirmative procurement policy pursued by the South African government. However these policies are yet to be evaluated to gauge their success.

2. THE STRIVE FOR INNOVATION AND ENHANCEMENT OF GLOBAL COMPETITIVENESS

The construction industry has been forced into a continued search for improved business methods. As such several issues such as inflation, quality, new technologies and high-risk investments have required new business strategies with emphasis on cost effectiveness and total quality (Bubshait, 2001). Consequently, this has culminated in an inferior industry compared to what Murdoch and Hughes (1996) observe of the construction industry in the first and second worlds as technologically superior in terms of materials, trades, facilities and organisational complexity.

It is against this background that, the SA Construction Industries Council (SACIC), with the mandate of governments in the region, formulated a construction industry policy whose vision is to promote stability and international competitiveness and generate new industry capacity for development. The policy also introduces instruments to ensure compliance with minimum standards relating to health and safety, productivity and quality, training, employment practice and environmental protection. This, the SACIC contends, will be achieved through establishment and promotion of 'best practice standards', which have been identified as the key driver of work process innovation and enhancement of competitiveness. Ultimately, this aims at creating a healthy and competitive industry that delivers value for money in line with international best practice in a globalised construction economy. (SA Builder, January 2000). The SACIC policy is undermined by a number of challenges, notably global competition and best practice standards.

3. THE CHALLENGES OF GLOBALISATION

The challenges of globalisation are best viewed in the mirror of the rules created by World Trade Organisation (WTO). These emphasise trade liberalisation and free movement of people and technology. This has brought about international competition in which international standards play an important role and consequently changing international business environment. The Impact of globalisation has been to transform business from nationally centred economic systems to the global marketplace. Thus traditional industrial boundaries are becoming blurred.

A key driver in this transformation is the rapid pace of technological change that is creating a wide array of new challenges. Global telephony, satellite communications and video links are some of the advancements. Technology is changing economic and trading relationships and creating new forms of organisation. Some firms simultaneously compete and co-operate with each other. Through ecosystems or economic webs, firms are feeling their way into third wave competition. Economic success is driven by improvements in private sector productivity. Crucial to this success is world-class managerial performance that knows how to leverage knowledge for competitive advantage. The competitive edge vision is the integration of all cross-functional management and technical resources necessary to become a world-class competitor (Hope and Hope, 1997). This competitive edge Vision is the integration of continuous improvement tools into a system that ensures implementation in a participative environment. It is this integrated approach that is necessary to achieve world-class competition. A part from the Competitive Edge Vision companies today have to be able to isolate and exploit areas of superiority over their competitors. This competitive edge has to be achieved at both project and firm level (Hope and Hope, 1997).

Thus in this globalised competition, the highest standards of efficiency are necessary. From the standpoint of construction business, it is necessary therefore, that those designs are efficient, cost effective and not wasteful. It is also necessary that procurement and delivery methods eliminate waste. Methods such as design/build that fast track, offer single point responsibility and expedite delivery by allowing design and construction to overlap, thereby increasing the designer/contractor relationships have chances of dominating the regime towards global competition. Enough attention needs to be paid to constructability to improve designs and to partnering to limit adversarial relationships. Likewise, technological innovation in order to reduce waste, increase precision and improve quality and the implementation of lean production via the application of engineering production type processes aimed at driving out inefficiencies and fulfilling the customers best interests are basic necessities. (Construction Manager, 1998). Moreover, improving productivity includes adapting best practices from other industries, and increasing the value for money and customer satisfaction coupled with improvement measurement in order that direct performance improvement can be attributed to specific actions and initiatives that will lead the industry in a position to compete effectively in the globalised environment (Coetzee, 2000).

The application of IT in construction, embracing e-commerce, must be a necessary inclusion in efficiency improvement efforts within its operations of design and construction. Likewise Sustainable Construction techniques must also be embraced in construction practices. These include: -

- Energy conservation both at pre and post construction stages of the project
- Reduction of pollution by use of safer and more environmentally friendly techniques
- Enhanced use of recycled materials.
- Open construction techniques.

When compared with other parts of the world, the SA industry does not seem to be prepared to meet the challenges of globalisation. It will therefore be a while before it achieves the status of a global competitor.

4. BENCHMARKING FOR GLOBAL COMPETITION

An important tool towards achieving global competitiveness is benchmarking. SACIC envisages that it will deliver its mandate through the establishment of Construction Industry Development Boards and/or National Councils for Construction (SA Builder, January, 2000). As part of this effort the South African Construction Industry Board is already established. One of the aims of the board is to guide the development of the South African Industry to achieve global competitiveness. In this respect, benchmarking will play an important role in this endeavour.

The focus will be to:

- Use it as an instrument for strategic and operative improvement.
- Institute best practices that will lead to superior performance through careful selection and manipulation of alternatives, comparison measures and calibration of key delivery best practices.
- Through audits, identify conformance or deviation from set norms and
- Create a climate where active learning can take place and encourage a motivation of change towards embracing best practices. (Hiltrop and Despres 1995; Creese et al 1998)

At a micro level some leading SA construction firms are already practising benchmarking by identifying and pegging their practices to those that will contribute to the long term improvement of their operations. However at a macro level, steps of applying the benchmarking concept within the wider industry are yet to be seen.

4.1 Best Practice Standards within the Framework of Achieving Global Competitiveness

To achieve global competitiveness, best practice standards resulting from benchmarking ,will need to be instituted and this requires drastic changes in the SA construction industry, following a structured organised process. The SA industry requires this at various levels. The analysis of problems, definition of outcomes and identification of the specific changes necessary to produce the desired outcomes has already been done in the government policy paper – the White Paper (1999). What remains is to operationalise the process at various levels.

Echoing Egan (1998) that construction best practice can be achieved by undergoing a cultural change and improving core integrated project management processes, the focus is to bring change in the following key areas.

- Decision makers commitment to continuous improvement both at micro and macro levels.
- Meeting the customers requirement in time, price and value, beyond customer expectation
- Organisational arrangement that support efficiency in meeting the customers needs, focussing on the service or product.
- Efficiency in achieving the needs of the customer, by enabling partners to buy in the process.
- A commitment to good industrial and environmental practices (www.CBPP.org.uk, 2001)

5. COMPETITIVE ADVANTAGE

It is hoped that these initiatives will lead to attainment of competitive advantage when the industry will be seen to perform is core business in a different and distinct way. Traditionally the main sources of competitive advantage have been by making the highest quality product, providing the best customer service, producing at the lowest cost or focussing on industry niches. However derivatives of these such as mass customisation through advanced manufacturing technology, modular product design, Internet driven distribution systems and new market segmentation techniques have not been fully achieved. The new move calls for a distinctive competence and customer-defined quality that can be leveraged. By extension, harnessing new markets, forming strategic alliances by vertical, backward or forward integration are part of formulating competitive strategies.

Porter (1990) and Karlof (1995) argue that the creation and sustenance of international competitive advantage involves constant change and internationalisation of competitive processes that have their roots in domestic industries or industry segments. At the core of achieving competitive advantage is innovation, which as identified by Porter (1990) has the following four pillars.

- Technological innovation that utilises new knowledge or techniques to provide an object or service at lower cost or higher quality. Technological change can create new possibilities for the design, production, delivery, marketing and ancillary service of products.
- Organisational innovation which does not require technological advancement but involves ‘social technology’ the changing relationship between behaviours, attitudes and values – new types of business organisation, new forms of contract and procurement
- Product innovation which involves advances in technology resulting in superior products - services
- Process innovations which substantially increase efficiency without significant advances in technology

5.1 Linkage between Best Practice and Competitive Advantage

Pemberton et al (2001) quotes Boxhall (1994) as noting that by using objective external standards, an organisation can assess its performance in relation to competition and learn from the experience of others to develop best practice which can lead to performance improvement. The inherent setting of objective standards and performance indicators, based on the practices of best performers and learning how leading competitors achieve their outstanding performance, is the best way to achieve this through benchmarking. Additionally, the identification and management of organisational expertise built around customers, products, processes, and technology, with reference to competition complements it. Ultimately competitive advantage is achieved when things are done differently from

competition in distinctive ways through its practices, product innovation, quality approaches and superior performance.

6. CHALLENGES OF MEETING GLOBAL COMPETITIVENESS

The constraints to improved performance within the SA construction industry include, the divide between the design and contracting wings and the adversarial relationships created between various parties. This is rooted in the traditional project delivery systems that are based on the traditional (classical) organisational models that propagate a centralised authority in management as opposed to the decentralised one. Thus the infrastructural and cultural framework that support these systems together with the entrenched mindsets are a hindrance to the development of the industry towards innovative and competitive ways.

This is compounded by limited reference to best practice standards to which the industry as a whole can aspire. There has, (until recently), been no structure to co-ordinate development of and enforce compliance with minimum best practice standards. However the major bottlenecks in this respect are lack of skills that are geared towards competition in a globalised industry and limited research together with its dissemination with a view to unlocking what appears to be a closed industry to the realities of global competitiveness.

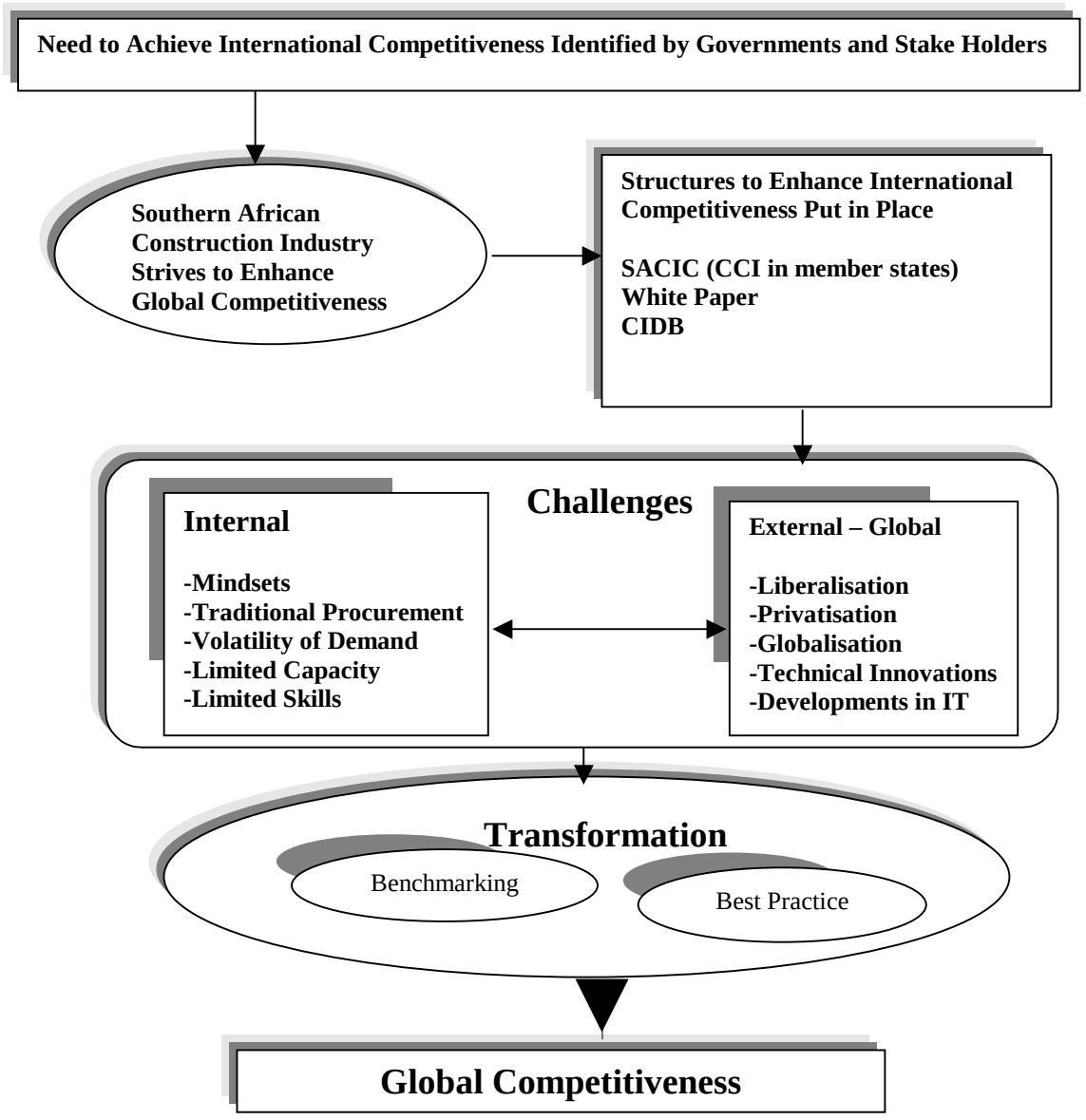

Figure 1: Rooting Global Competitiveness

Figure 1 shows that efforts geared to achieving global competitiveness are being undermined by both the external and internal challenges faced by the SA construction industry. The role of benchmarking as a catalyst of transformation is a conspicuous necessity to the process

7. CONCLUSION

The efforts undertaken so far towards improving the SA construction industry, particularly by the government and a few of the leading construction firms are a step in the right direction. However, the task ahead in order to achieve international competitiveness is enormous. It requires the concerted efforts of all the stakeholders: clients, consultants, contractors and the government to work in a participatory way for the same goals of achieving global competitiveness. Clients will need to demand better services from their consultants. The consultants still need to be receptive to new ideas and be willing to change. The government is to further provide an enabling environment. Reforms in infrastructural and cultural framework and training underpinned by research cannot be overemphasised.

8. REFERENCES

An Mbendi Profile: Africa-Overview (2000), http://www.mbendi.co.za/land/af/p0005.htm 16th December 2001

Bechtel Global Report 2001, http://www.bechtel.com 7th December 2001

Bjørn et al (1999). "Benchmarking Supply Chain Management: finding best practices". *Journal of Business and Industrial Marketing* Vol.14 No. 5/6 pp 378-389

Coetzee G. (2000) "Improving competitiveness through the implementation of best practices". *Construction World* February 2000 pp12

Concor Group Company website. http://www.concor.co.za 13th December 2001

Construction Best Practice Programme (2001) wysiwyg://34/http://www.cbpp.org.uk/cbpp/news.jsp? anchor, 15th December 2001

Construction Best Practice Programme (2001) wysiwyg://37/http://www.cbpp.org.uk/cbpp/news.jsp? anchor, 15th December 2001

Construction Best Practice Programme (2001), http://www.cbpp.org.uk/cbpp/cbpp_publications/comp_profiles.jsp 21st December 2001

Construction Best Practice Programme (2001), wysiwyg://32/http://www.cbpp.org.uk/cbpp/htm 15th December 2001

Construction World (2000) "Caesars Gauteng - *Construction World* Supplement – July 2000" pp 2-20

Construction World (2000) "Casino development to boost Western Cape Tourism" pp18, March

Department of Public Works (1999) White Paper (1999) Creating an enabling environment in the Construction Industry, http://www.publicworks.gov.za/docs/policy/constwp1,2,3,...html 12th December, 2001

Development Support Network for Southern Africa (2000). Knowledge Management, http://geocities.com/desnnsa/infor_gen/sitemap_km.htm 15th January 2002

Equity and Growth through Economic Research (EAGER) (2000). Global Trade Analysis for Southern Africa: a policy brief, http://ntl.ids.ac.uk/eldis/masters.htm 16th January 2002

Gray C. (1996). Faster, Better Value Construction: a best practice guide to construction management, RPE, Reading, U.K.

Grinaker Construction Ltd (2000) Company Profile, http://www.mbendi.co.za/orgs/cctf.htm 12th December 2001

Halliburton Company (2001), "Value through integration". http://www.halliburton.com 7th December 2001

Hiltrop J..M. and Despres C. (1995). "Benchmarking H.R. Practices: Approaches, Rationales and Prescriptions for Action" *Rethinnking Strategic Management –Ways to Improve Competitive Performance*. Edited by D.E. Hussey

Hope J. and Hope T. (1997) *Competing in the Third Wave – The Ten Key Issues of the Information Age* Havard Business School Press, Boston Massachusetts, USA.

Jackson, H.K. Jr and Frigon N.L *(1996*) *Achieving the competitive Edge –A practical Guide to World Class Competition*, John Wiley and Sons, Inc., New York , USA

Kaminsky J. (1997) "Maintaining Quality in construction- SA's greatest single challenge" The *Civil Engineering and Building Contractor*, Vol.31. No.3 pp 6-11

Karlof B. (1995). "Benchmarking as an Instrument for Strategic and Operative Improvement" *Rethinnking Strategic Management –Ways to Improve Competitive Performance*. Edited by D.E. Hussey

Ling Y.Y. and Lim M.P.S. (2001). "A survey of factors that Singapore Architects consider when recommending consultants to clients". *Journal of Construction Research*, Vol.2 No. 2, pp 181-190

Male S. (1991) "Competitive Advantage in the International Construction Industry". *Competitive Advantage in Construction* Edited by S.P. Male and R.K.Stocks*:* Butterworth-Heinemann U.K

McGeorge D. and Palmer A. (1997) *Construction Management – New Directions;* Blackwell Science, Cornwall, U.K.

Mlangeni T. et al (2000)). "Revealed Comparative Advantage in SADC Economies" *Southern African Update* Volume 5 March 2000 pp 1-4

Movement for Innovation-Key Performance Indicators for 2000. Http://www.m41.org.uk,10th December 2001

Murray and Roberts Company Website. Http://www.murrob.com, 10th December 2001

Porter (1990). *The competitive Advantage of Nations*, The Free Press, New York, USA

Prescot J.E "The Evolution of Competitive Intelligence'. *Rethinnking Strategic Management –Ways to Improve Competitive Performance*. Edited by D.E. Hussey

Rethinking Construction? (2001), http://www.rethinkingconstruction.org/about/intro.html, 12th December, 2001

RSA Ministry of Finance and Ministry of Public Works (1997) "Green Paper on Public Sector Procurement Reform in South Africa" March 1997

SA Builder (2000) "The Southern African Construction Industries Council" No. 914 pp 3

SA Builder (2000). "Project of the month –Johannesburg International Airport Extension" No 915 pp19-50

SADC Trade, Industry and Investment Review (2001), http://sadcreview.com, 12th December 2001

Schultz P. (2000) "Casino Construction Projects-Saving grace for Building Industry? *Project Pro-The Journal for project Professionals* Vol. 10. No. 6 November/December

Sigcau S. (2000). "Movement forward must be seen". *The Civil Engineering and Building Contractor*, Vol.34. No.4 pp 8

Snyman J. and Langenhoven (1998). "The construction industry in paralysis: who or what is to blame?" ". *The Civil Engineering and Building Contractor*, Vol.32. No.5 pp 10-12

Southern African Development Community (2001), http://ntl.ids.ac.uk/cgi-bin/dbtcg…ISPLAY=0&$REPORT_FORM=Full+display, 13th December 2001

Southern African Development Community (2001), http://www.sadc.int/english/about/background.htm, 15th December 2001

Southern African Development Community (2001). Energy Information Administration, February 2001, http://www.eia.doe.gov/emeu/cabs/sadc.html, 10th December 2001

Southern African Development Community. (2000). Committee of Central Bank Governors in SADC Annual Report – 1999/2000, http://www2.sadcbankers.org/SADC/S…7a7c9?OpenDocument&ExpandSection=4,3,2,1, 12th December, 2001

Stein N. (2000). "The world's most admired companies". *Fortune Global 500*, http://www.fortune.com, 12th December 2001

The Construction Benchmarking Gateway. http://KPIZone.com, 12th December, 2001

The Industry Standard http://www.thestandard.com, 12th December 2001

The Turner Corporation (2001). "Turner, the Nation's #1 Builder" http://www.turnerconstruction.com,10th December, 2001

USAID CP '98:Initiative for Southern Africa (2000). http://www.usaid.gov/pubs/cp98/afr/zz-isa.htm, 10th December 2001

USAID CP '98:Initiative for Southern Africa (2000). http://www.usaid.gov/pubs/cp/afr/zz-isa.htm, 12th December 2001

Winch G.M. (2000). "Construction business systems in the European Union". *Building Research and Information* Vol.28 No.2 pp88-97

Winch G.M. (2000). "Institutional reform in British Construction: partnering and private finance". *Building Research and Information*, Vol.28, No. 2, pp141-155, E & FN Spon