

CONSTRUCTION INDUSTRY'S CONTRIBUTION TOWARDS BOTSWANA'S VISION 2016

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The reciprocal relationship between the construction industry (CI) and the socio-economic development, particularly the CI's output, has been a subject of constant investigation. The relationship is studied further in the context of growth and sustainability of the CI in relation to facilitating the realization of Botswana Vision 2016. By analysing statistical data in the period between 1990-1998, the relationship is explored using Botswana's CI. In addition, relevant stakeholders in the CI were also interviewed to solicit their perceptions. While there is a relationship between the macro economic environment and the CI, the relationship is not clear-cut. Many factors come into play and change over time, for example, the configuration of sectors of the national economy, the structure and organization of the CI, the global economic order, play an important part in shaping its profile. The uncertainty of the former made it difficult to ascertain whether CI will be able to sustain efforts to achieve Botswana's Vision as many of the areas studied showed a decline in performance.

Keywords: construction output, capital formation, employment, growth rate, GDP, housing, NDP, vision.

INTRODUCTION

Botswana promulgated its national long-term plan, dubbed 'Long-term Vision for Botswana', (hereafter referred to as the Vision), to be realized by the year 2016. The aim of the Vision is, among others, to transform Botswana into a modern society with an appreciable standard of living on the socio-economic front. A number of strategies were laid out in the Vision aimed at promoting social and economic development. The strategies aim at creating an enabling environment for all key sectors of the economy to have sustained growth and performance (PTG 1997). The construction industry (CI) is one of the sectors expected to play a major role in realizing the goals of the Vision. This in line with the studies carried out by several researchers, such as Turin (1973), Wells (1985), and Ruddock *et al.* (1996) who have linked the role played by the CI in achieving sustained economic growth and development. This contribution is evidenced through the interdependence that exists between the economy and the CI sector, with the latter providing the infrastructure support and in some cases factors of production for other sectors of the former.

This paper looks at some of the Vision's targets and reviews the current state of the economy in relation with the identified targets. Using the work done by some of the mentioned researchers, the paper investigates whether Botswana's CI is in line with the observation made in their studies and whether the CI will be able to support and influence the social and economic transformation envisaged in the Vision. In the process, opinions and forecasts of the stakeholders in the CI, are sought as to the

Table 1 Major Indictors of Botswana's Economic Profile (1990-98)

	90	91	92	93	94	95	96	97	Avg	Avg 96-98
GDP (P 'million)	4219	4484	4480	4667	4793	5108	5474	5929		
Per Capita (P)	3197	3314	3233	3289	3299	3428	3584	3787		
GDP change (%)	8.7	6.3	(0.1)	4.2	2.7	6.6	7.2	8.3	5.5	7.4
Per Capita change (%)	4.9	3.7	(2.4)	1.7	0.3	3.9	4.5	5.7	2.8	4.7
Inflation (%)	11.8	16.2	14.3	10.5	10.5	10.1	8.9	6.5	11.1	
S. African Inflation (%)	15.2	13.9	9.7	9.0	8.6	7.4	8.6	6.0	9.8	
US\$/P (Dec)	2.07	2.25	2.56	2.71	2.82	3.64	3.80	4.46		
B£/P (Dec)	3.88	3.41	3.80	4.24	4.37	6.16	6.32	7.50		

Source: CSO (1998) and all GDP figures expressed in 1985/86 prices where 1US\$= P2.35

future direction and performance of the industry. Statistical data for the period 1990-98 relating to the economy and CI is used for the analysis. The period is chosen because of the completeness of data, its relevance to the prevailing conditions and the fact that Vision commenced during the period.

BACKGROUND TO BOTSWANA'S ECONOMY AND VISION

Botswana is a landlocked with an estimated 1.57 million habitants, living in an area of 581 730 square kilometres (CSO 1998). Botswana was listed among the 25 poorest and least developed nations in the world at independence in 1966. Over the years, Botswana's economy has achieved phenomenal growth such that in its report of 1995, the UNDP ranked Botswana 74 out of 174 countries on the Human Development Index (HDI), making it a lower middle income nation (UNDP 1995). Economic indicators for the period 1990-98 are shown in Table 1 and also illustrated in Figure 1a.

GDP has grown in absolute terms from P4219.4 million to P5928.9 million, respectively while GDP per capita grew from P3197 to P3787 in the same period.

- Recent years have seen a slowing down of the economy. The annual GDP growth rate and GDP per capita have averaged 5.5% and 2.8% respectively, in the period (see Figure1(a)). Both indicators declined from 8.7% and 4.9% to a record low of -0.1 and -2.4, respectively, in 1992, though, both picked up in 1998 reached 8.3% and 5.7% respectively.
- The annual inflation rate was in double figures in the period, averaging 11.1% and reaching a pick of 16.2% in 1992. However, it declined from that level to settle at 6.5% in 1998. The inflation followed the South African inflation trend, confirming that a major percentage of Botswana's inflation was imported inflation⁷.
- The Pula weakened appreciably against other major currencies. In 1991, the US\$ and the B£ were exchanged for P1.87 and P3.59, respectively. By the end of 1998 the two currencies were exchanged for P4.46 and P7.50, representing a depreciation of approximately 42% and 48%, respectively in the period.

Long-term vision of Botswana

Twenty years from 1996 Botswana will be 50 years old as a nation. Looking ahead necessitated formulating a set of targets in form of a Vision to be realized in the year

⁷ Botswana's imports over 65% of its goods from South Africa. Botswana is bound to experience imported inflation from South Africa because of its strong trading ties with South Africa.

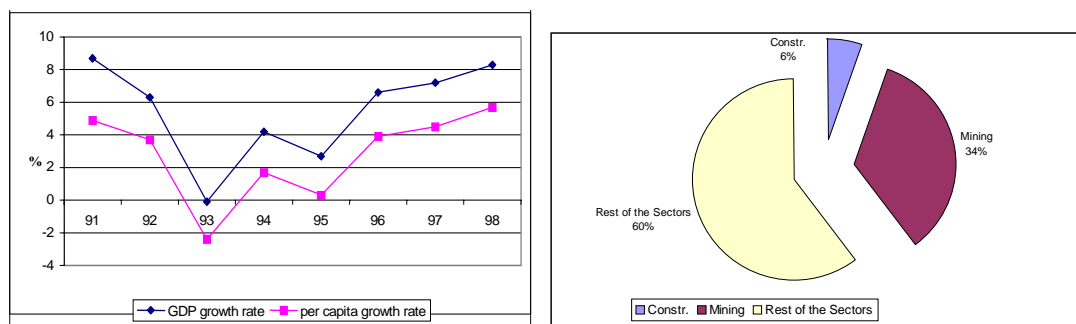


Figure 1a: Growth rates of Botswana's economy and **Figure 1b:** Average GDP ratio for CI

2016. From an economic point of view, the Vision intends to achieve sustained development, rapid economic growth and economic independence with a need to diversify economic activity. This means moving it away from the present dependence on mineral revenue that has contributed on average 34% of the Gross Domestic Product (GDP) between 1990-98 (see Figure 1b). To achieve this, inevitably Botswana needs to carve out strategies aimed at strengthening all economic sectors, including the construction sector (PTG 1996 and CSO 1998). The implementation of the Vision started in 1996, in which all sectors of the nation are expected to work towards achieving a number of set targets. Among them, is that GDP per capita is expected to reach the US\$8500 mark, to qualify Botswana as a high-income nation. To achieve this, an investment of 41% of GDP is expected, so that the economy grows at an average annual rate of 8% and at an average per capita growth rate of 6%, in real terms, from 1996, for the next 20 years. In addition, full employment is expected and no citizen should be below the Poverty Datum Line (PDL) by the year 2016⁸. Botswana's PDL is currently P140 and currently 26.7% of the households are below the PDL (Jefferis 1998). It is also anticipated that at that date, there will be gender equality and equal distribution of resources in both urban and rural areas (PTG 1997). The gap between Vision's targets and current social and indicators poses a serious challenge to find new and productive activities that will provide future growth in employment and income earning for the bulk of the people. The following section looks at the Vision targets against the actual performance.

Comparison of the vision's and current performance

A comparison of the Vision targets and the current performance of the economy since the inception of the Vision in 1996 are summarized in Table 2. From the table a few aspects are notable, for example:

- The current per capita of US\$2 850 at 1995/6 level is 3 times less than the target of US\$ 8500.
- The annual average growth rate for the economy and per capita has been 7.4% and 4.7%, respectively. The indicators are not in line with the expected Vision targets of 8% and 6% respectively.
- Also, not in line is the annual average investment level of 26.2% instead of the targeted 41% (CSO 1998).
- The unemployment level is currently at 22%. Unfortunately, no unemployment decline rate was set as a target to compare with, though the target set for the year 2016 is ambitiously set for 0% (full employment).

⁸ Population is estimated to be about 2.7 million in the year 2016.,

Table 3: Value of implemented and planned development projects

	NDP 7 (1991-97)	NDP 8 (1997-03)
Budget (P' million)	6 827	11 783
Number of Projects		176
Implemented (P' million)	5 803 (85%)	

Having looked at the economy using a few of the economic indicators and how they relate to the Vision targets, it is an opportune moment to look at the current state of the CI.

CONSTRUCTION INDUSTRY AND BOTSWANA'S ECONOMY

Yahya's (1997) Report on the Housing Policy outlined the areas in which the housing sector contributes and influences the economy, namely: (a) housing (b) income generation, (c) capital formation (d) import substitution, (e) employment creation and (f) contribution to GDP. Since the housing sector is part of the CI, the areas identified above are also a good basis of analysing the past performance of the sector and its contribution to the economy, as discussed below.

Housing

Housing is one of the basic needs of mankind and in Botswana, the growth of formal housing has been phenomenal despite the decline in recent years. There is no accurate data as to the total number of houses built in the period, though some estimates put the number at 34, 255 units with, Botswana Housing Corporation (BHC) building a total of 8367 units in the urban centres. This makes BHC the leading player in house construction (BHC 1997). However, the number built per year by BHC declined from 1691 to 783 units in 1991 and 1997, respectively. This could have been due to a number of factors, though the main one was the corruption allegations, which engulfed the corporation in the period and led to the cancellation of projects⁹. The other factors were the increase in the cost of land and the increase in interest rates on building loans. The last two aspects increased the cost of production and therefore affected every other property developer. All the factors led to a decline in the rate of house construction in the country, a fact evidenced by increases in rentals over the period.

Income Generation

Income generation by the construction sector arises from profits made from projects, which accrue, to the owners of capital. In addition, interest on loans taken for execution of projects, mortgages for building of houses, income earned from hiring and leasing of construction plant and equipment, provide another way of income generation. Economists view another indirect but significant way of income generation by using the concept of the multiplier effect. They contend that, construction projects act like 'economic seeds', which increase (multiply) economic activity as a result of their implementation. The result is to increase aggregate demand for services and products in the sectors of the economy that may be directly or indirectly related to the project (Seddon *et al.* 1982).

The Budget Speech of 1998 (Mogae 1998) provided a clue to the value of projects carried out by the Government during the NDP 7 as illustrated in Table 3. However,

⁹ BHC scandal was about revelations about the corrupt nature of the awarding tenders and management of housing projects by BHC officials and the contractors which led to a cancellation of many projects (Christie, 1992).

no data is available to show the profitability of projects, as contractors are never willing to divulge such information. Also, no reliable estimates of margins can be made in this regard because this depends on a number of aspects, for example, margins are quite large during boom times and lean during recession. Furthermore, no studies have been carried out to specifically evaluate the multiplier effect of projects on the incomes in the economy in the same period.

In the period 1990-98, loans and mortgages totalled over P2 099 million between 1990 and 1998 (CSO 1998 and BBS 1997). The loans and mortgages provided an income of about P293 million in form of interest to the financial institutions¹⁰. The construction loans averaged 6% of the entire loans provided to the economy by commercial banks. However, the percentage declined from a high of 7.2% in 1994 to 3.6% in 1997. The reasons for the decline may be that the CI's activities contracted and the banks could have found more lucrative or less risky sectors than the CI or both.

Capital formation

The total gross fixed capital formation (GFCF) has formed an average of 26.2% of GDP of which the CI contributed an average of 14.4%. In absolute terms, the CI's portion of the GFCF rose from P1061.4 million to P2315.4 million in 1990 and 1998 respectively. The large amount of capital injections introduced in the economy by the Government, parastatal and private firms in the last two decades have brought visible changes in Botswana. The changing skyline of Gaborone City, the modern buildings and houses mushrooming in towns and villages and the increase of bitumen roads, bear testimony to the developments. However, it is worth noting that though, the CI's contribution to GFCF was increasing in absolute terms, there was a decline from 14.2 % to 12.9%, as a percentage of GDP.

Import substitution

The backward linkage of the CI has played an important role in the creation of wealth, employment and in supporting the local manufacturing sector of construction materials. Many aggregate and sand quarries have sprung up in the country, while the last ten years have seen the commissioning of a cement and a brick factory, to name a few developments. The developments have lessened the need to import building materials. If we assume that 40-50% of the project costs go to materials, then, for example, Botswana could have spent P130 million on importing construction materials in 1997/98¹¹.

Employment

While all sectors of the economy provide employment, the CI has an added benefit, in that it offers the first employment opportunity for the unskilled and the semi-skilled people. It further provides a training opportunity for these cadres creating another opportunity of absorbing the category into formal labour market after training (Yahya 1997).

Though there has been an increase in the number of construction companies in Botswana, from 403 in 1990 to 787 in 1998, the number of registrations per year has declined from 60 to 46 per year respectively. Over 60% of the construction companies are based in the City and over 50% have between 5 to 30 employees.

¹⁰ If an average interest rate 14% is used for both loans and mortgages.

¹¹ 50% of P300 million gives material costs of P150 million and since Botswana imports approximately 67% of its material from South Africa then about P130 million may have been spent in 1997/98.

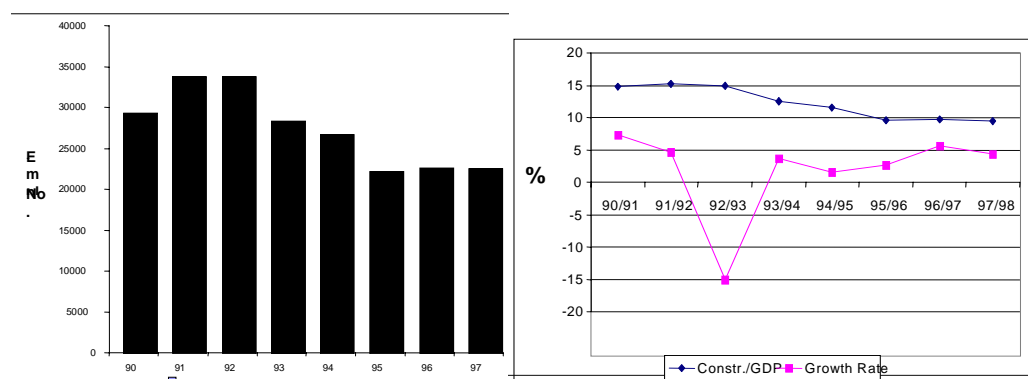


Figure 2a: Employment by CI and **Figure 2b:** CI's GDP ratio and its growth rate

Looking at the employment figures for the period 1990-98, there has been a slight decline in the employment capacity of the sector. For example, in 1991 the sector employed 29 300 people while in 1998 the figure declined to 22 500 representing 14.8% and 9.4%, respectively, of the total employment (see Figure 2(a)). On the other hand the output per employee increased from P966 to P1333. It is not clear the reason for the increased productivity. It could have been the incentive of the increased real wage rate, which rose from P0.92 in 1990 to P1.59 in 1998 and which was the highest for all the sectors in the period. Alternatively, it could have been increased efficiency as a result of mechanization and automation of activities of the sector.

Contribution to GDP

In absolute terms, the contribution of the CI to GDP rose from P283 million in 1990 to P300 million in 1998 representing a decline from 6.7% to 5.1% respectively. The average annual growth rate of the CI was 5.5% in the period, though declining from 7.3% to 4.3% in 1990 and 1998 respectively, as illustrated in Figure 4. In 1992/93, (a year which was characterized by the aftermath of the BHC scandal, low diamond sales, the highest inflation ever recorded (16%) and a high increase in interest rates - from 9% to 12%), a negative growth rate of -15% for the CI was registered. It was one of the most turbulent years for the CI though since then there has been appreciable recovery.

BOTSWANA'S CI CAPACITY AND OUTPUT

The CI's capacity and output are among the variables that have featured in the studies of the CI and socio-economic development. According to Smith (1998) output refers to the total value of work carried out, both completed and work-in-progress, while capacity refers to the optimum output per annum of the CI. To economists, the word optimum means the point at which a sector of the economy is employing its resources in the most efficient and effective manner (*ibid.*). Against this background Turin (1973), Wells (1986) and others, gave two propositions:

- a) For sustained growth and development, the rate of growth of CI must be higher than the GDP growth rate. The rate of growth reflects the capacity of the construction sector to sustain the needs of the economy per year (Turin 1973).
- b) There are threshold values of the CI's contribution to the GDP. Wells (1986) gave the minimum values as 3.6% for less developed, 5.2-5.4% for middle developed

Table 4: CI Average contribution to GDP and growth rate of CI and GDP

	1974-80	1981-90	1991-98
Construction (%) of GDP	9.8	3.6	5.7
GDP growth rate (%)	12.6	8.8	5.5
Construction growth rate (%)	7.1	4.3	1.1

Source: compiled from CSO (1987 and 1998)

and 7.3% for developed countries. These values reflect the CI's output and Botswana's value should be above 3.6%¹².

Bringing the two propositions into context of Botswana's CI (whose indicators are summarized in Table 4), the first proposal is not true for the last three decades, as Botswana's CI growth rate was less than its GDP. The second proposition holds as Botswana's CI average contribution to GDP has been equal or above the threshold of 3.6% for the same period.

As for the first paradigm, Khairuddin *et al.* (1998) contended that if the construction capacity fails to grow faster than the economy then the inadequate capacity becomes a constraint to achieving sustained socio-economic development. This assertion translates very well into a practical observation, which has been taking place in Gaborone City. For over a long time, office and house rents have been rising and a large number of residential houses have been turned into offices and lodges, implying lack of proper office space. In addition, there are a number of people commuting to work from neighbouring villages situated 10-40 km from the City, who cannot afford rent in the City or simply cannot find suitable accommodation. One of the reasons behind Botswana's inadequate capacity is the ineffective structure and organization of the CI characterized by constraints such as unavailability, insufficient or inappropriate use of resources, functions and institutions (Khairuddin *et al.* 1998 and BOCCIM 1992).

The second proposition falls within expectation, that is, for a fast growing economy, which Botswana has been in the last fifteen years, one would expect adequate output. Moreover, Botswana is one of those countries suffering from the 'Dutch Disease'¹³, where money from mineral revenue is usually channelled into vigorous and conspicuous infrastructure building.

Before leaving the subject of the role of CI in development, it may opportune to comment on the previous studies in the context of Botswana. There is no doubt that the relationship exists between the CI and the macro economic environment. In his recent work, while appraising the 'Turin Models', Drewer (1998) noted that 'there exists predictable and casual relationships between the main construction aggregates and those measures of the wider economy which define an hypothesized profile for construction in the process of economic and social development'. The relationship is indeed a two-way affair, if the economy is doing well, the CI does well too. However, if the construction industry booms too much as a result of over excitement of a healthy economy, its effects may 'overheat' the economy, raising prices and causing inflation as happened between 1990-94 in Botswana.

¹² The UNDP report classified Botswana as a lower middle income nation, in terms of Well's category, Botswana falls into a less developed country. Its minimum size of GDP contribution ratio therefore, should not be below 3.6%.

¹³ Countries whose GDP is mainly from mineral exports such that the strength of the mineral sector squeezes out production of other tradable commodities, in agriculture, manufacturing and others (Jefferis K *et al.* 1998)

THE FUTURE OF CI

We return to the fundamental question: Will the CI be sustainable in order for it to contribute to the achievement of the socio-economic development envisaged in the Vision? We have noted a decline in most of the areas used to analyse the performance of the CI namely housing, income generation, employment, GCFC and contribution to GDP. The future of the CI depends on two broad factors, the internal and external factors. The former refers to the structure and organization of industry (which is out of scope for this paper). The latter refers to CI's environment legal, political, social, cultural and economic, to mention a few, of which the latter has been given a lot of prominence in this paper.

As a last exercise of investigating the future performance of the CI and its contribution to the economy perceptions from various stakeholders in the industry were solicited in form of a questionnaire. Of the 8 questionnaires sent to Government Departments and parastatals, 6 were returned and of the 40 questionnaires sent to consulting and construction firms, 30 were returned. The following facts and perceptions were obtained.

- a) For public agencies 70% of the respondents said they often lacked implementation capacity due to a variety of reasons such as availability of funds (donations or revenue), inadequate capacity and bureaucracy.
- b) For the firms:
 - i Over 80% of the consulting and construction firms got 60% of their jobs from either Government departments or parastatal organizations. This implied that the public agencies are the biggest clients of the CI.
 - ii 100% of the consulting and construction firms felt that the Government ability to procure projects was positively correlated with a healthy economy.
 - iii 60% of the consulting and construction firms felt that economic projections and perceptions were a very big factor in procurement of construction development projects by the private sector.
- c) About the Vision, one respondent mentioned what might be a valid remark, that because the formulation of NDP 8 and the Vision were carried as a separate exercise, synergy was lost. His observation was evident in the discrepancy in the targets set for NDP 8 and those stated in the Vision¹⁴. He contended that future development plans should be formulated in a stepwise manner as to build up to the Vision.
- d) As regards to the future of the CI, 10% were optimistic, 70% were not sure and 20% could not forecast (the future was defined as the next 4 years, the remaining NDP 8 years).

In a nutshell, the respondents were confirming that the Government and its agencies were the largest clients of the CI and their capacity to plan and implement depended on its revenue. Government revenue depends on a prosperous world economic order that encourages a high consumption of diamonds. This in turn leads to a buoyant Botswana economy that demands construction services. The 1999 Budget Speech further provided an insight about the past and the future. The blink picture experienced by Botswana's economy and the CI, in the period, particularly in 1992,

¹⁴ The targets for NDP 8 were set as growth rate 5.2% and per capita growth rate of 4.8% yet for the Vision the targets were set as 8% and 6% respectively.

was blamed on global recession. Also, the recent Asian crisis has been blamed for poor performance of both the world and developing economies in 1997-98 (Kedikilwe 1999)¹⁵. The advent of globalization implies any national economy, such as Botswana's economy, is vulnerable and not shielded from the global economic turbulence.

Lastly, apart from the economic turbulence, one may not predict the effect of extraneous events like the cancellation of all construction activity due to drought (1982-87) or incidents like the BHC corruption saga, which led to cancellation of its projects and hence disrupting the CI's activities (1992). These two cases emphasize that without the fault of the economy or CI, the relationship may be disrupted by other events, any time and may therefore be unpredictable! It also emphasizes the fact that Botswana's CI is still in its infancy, that is, not a stable industry and hence susceptible to disruptions. As a result of this it is very difficult to predict using numeric models.

CONCLUSION

This study has shown that the Botswana's CI has been experiencing a decline in the various areas used for the analysis of performance. The analysis was based on the assumption that there is a casual relationship between construction and development. However, because of the instability of this relationship due to various factors, some of which have been identified, the study could not give an accurate picture of the future. Consequently, it could not predict how the performance of the CI would affect the Vision. It is therefore, hoped that another study will be conducted to investigate constraints in the structure and organization of the Botswana's CI to provide a more holistic picture of the industry.

REFERENCES

- Barclays Business Guide (1997) *Barclays Business Guide to Botswana*. Barclays Bank of Botswana Ltd.
- BBS (1997) *Botswana Building Society Annual Report 1997*.
- BHC (1997) *Botswana Housing Corporation Annual Report 1997*.
- BOCCIM (1992), Report on the Study of the *Construction Industry in Botswana*, prepared by Botswana Technology Centre and sponsored by Botswana Confederation of Commerce Industry and Manpower (BOCCIM).
- Central Statistics Organization (CSO) (1999) *Annual Economic Review*, Government Printer
- Central Statistics Organization (CSO) (1998) *Statistical Bulletin*, Government Printer.
- Christie, (1992) *Presidential Commission of Inquiry into the Operations of the Botswana Housing Corporation (BHC)*, Government Printer.
- Drewer, S. (1998) Construction and development: further reflections on the work of Duccio Turin. In: *Procs of the first International Conference on Construction Industry Development: Building the Future together, Singapore*. **1**
- Jefferis, K. and Kelly, J. (1998) *Determinants of Poverty in Botswana*. The Research Bulletin, Bank of Botswana, **16**(2), Botswana.
- Khairuddin, B.A.R., Morledge, R. and Jabatan, K.R. (1998) Constraints in resources and functions within the process of procurement in Malaysia. *Journal of Procurement*. **4**(1).

¹⁵ World's growth rate declined from 4.1% to 2.0% in 1997 and 1998 respectively. For developing economies, the decline was 5.8% to 2.3% respectively.

- Kedikilwe, P.H. (1999) Minister of Finance and Development Planning, (1999), *Budget Speech*, Government Printer.
- Mogae, F. (1998) Minister of Finance and Development Planning. *Budget Speech*, Government Printer.
- National Development Plan (NDP) 7 (1991), Government Printer.
- National Development Plan (NDP) 8 (1997), Government Printer.
- PTG - Presidential Task Group (1997) *Long-term vision for Botswana*, Government Printer.
- PTG - Presidential Task Group (1996) *A Framework a Long-term vision for Botswana*, Government Printer.
- Ruddock, L. and Lopes, J. (1996) A model of interdependence between the construction sector and the general economy for the developing countries of Africa. In: Thorpe, A. (ed) *Procs 12th Annual ARCOM Conference*, September. Sheffield Hallam University: Loughborough: ARCOM. 2: 576–585.
- SADC (1998) *Official SADC trade, industry and investment review*, Southern African Marketing Co. (Pty) and SADC.
- Seddon, V.J. and Atkinson, G.B.J. (1982) *Economics for the construction industry checkbook*. Butterworth Technical and Scientific Checkbooks
- Smith, J. (1998) *Building Cost Planning for the Design Team*, Deakin University Press, Victoria Australia.
- Yahya Saad and Associates and FMA Architects (Pty) Ltd (1997) *Report on the Review of the National Policy on Housing*. Ministry of Local Government and Housing, Government Printer.
- Stanibic (1997) *Botswana in figures* Stanbic Bank Botswana Ltd
- Turin, D.A. (1973) *The construction industry: its economic significance and its role in development*. London: University College Environment Research Group.
- UNDP (1995) *Human development report*. United Nations Development Programme.
- Wells, L. (1985) The role of construction in economic growth and development. *Habitat International*. 9(1)