A REVIEW OF FACTORS AFFECTING URBAN DEVELOPMENT PROJECTS IN THE DEVELOPING AREAS OF SOUTH AFRICA

Vivian Coenraad Gericke

A nine (9) point project report submitted to the Faculty of Engineering, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Engineering.

Johannesburg, 1991

DECLARATION

I declare that this project report is my own u[illegible]ork. It is being submitted in partial fulfilment for t[illegible] Degree of Master of Science in Engineering in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

VC Gericke

V C GERICKE

30th day of March 1991.

ACKNOWLEDGEMENT

The author wishes to express his sincere appreciation for the assistance and invaluable guidance provided by Professor R. T. McCutcheon with this investigation and the drafting of the project report.

ABSTRACT

The successful execution of urban development projects in South Africa's developing communities is not, as recent experience has amply demonstrated, solely a matter of resolving the technical difficulties. This report motivates the opinion that other matters outside the traditional responsibility of the civil engineer are vital to successful urban development. These matters include planning for economic development, urban managerial and financial matters as well as peripheral project related issues.

The report identifies and reviews the most important issues in each of the above mentioned categories, and, based on the author's experience in practice, suggests approaches to these matters.

The report concludes that civil engineers, and particularly project managers, should reconsider their role in urban development. A need exists in this field for project managers to broaden their scope to the management of development in its widest sense. Should timeous action not be taken by the engineering profession to prepare their members for this new role, the void is bound to be filled by another discipline.

CONTRIBUTION OF THIS INVESTIGATION

South Africa has experienced a significant change in circumstances pertaining to the urbanisation of its poorer communities. The transformation has been so abrupt that many civil engineers now find themselves in a situation where they do not always fully appreciate the implications of the new circumstances for their projects.

This investigational report provides the civil engineer who acts as project manager for large urban expansion projects, with a better understanding of relevant factors pertaining to the black urbanisation process. Based on the author's experience in practice the report furthermore identifies the most critical factors affecting large urban development projects, and where possible suggests practical approaches for addressing the issues.

This report also contributes to a re-definition of an appropriate role for the civil engineer as project manager in these changed circumstances.

CONTENTS Page

3. CURRENT APPROACHES TO URBAN DEVELOPMENT

4. THE DEVELOPMENT OF MANGAUNG

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviation	Definition
AAC	Anglo American Corporation
CBD	Central business district
DBSA	Development Bank of Southern Africa
EIA	Environmental Impact Assessment
EPPIC	Environmental Planning Professions Interdisciplinary Committee
LALF	Local Authority Loan Fund
MLL	Minimum living levels
MSL	Minimum subsistence level
NHC	National Housing Commission
PWV	Pretoria, Witwatersrand and Vereeniging
RSC	Regional Services Council
SA	South Africa
SAHT	South African Housing Trust
SATBVC	South Africa, Transkei, Bophuthatswana, Venda and Ciskei
SLL	Supplementary living level
TBVC	Transkei, Bophuthatswana, Venda and Ciskei
UDP	Urban development plan

CHAPTER 1

INTRODUCTION

1.1 A SIGNIFICANT CHANGE IN CIRCUMSTANCES

The last number of years have been marked by significant changes in circumstances pertaining to the urbanisation of South Africa's poorer communities.

During the 1950's to the 1970's when the pressures for black urbanisation were increasing, the Government's philosophy was one of separate development. The objective at the time was that all blacks should eventually be accommodated within politically and economically separate units. Blacks within the urban areas of South Africa were regarded as temporary residents only. It was only during the 1980's that the permanence of blacks in urban South Africa was formally acknowledged. This acceptance by Government of the inevitable was followed by developments that have contributed to a significantly transformed urban situation. The following are some of the most important milestones:

- the abolition of the administration and development boards (1984 & 1986)

- the establishment of autonomous black local authorities (1986)

- the scrapping of influx control (1986)

- the acceptance by Government of a positive urbanisation strategy as contained in the White Paper on Urbanisation (April 1986).

This sequence of events marked a sudden change from an artificial first world urban environment to a situation comparable to that found in many third world countries (Tomlinson, 1990). The high rate of increase in urbanisation since the above events (refer to paragraph 2.2), the low affordability levels (Wilson and Ramphele, 1989) of the new arrivals to the towns and cities of South Africa and predictions of a continued high growth in the urban areas, are some aspects that underline the significance of the transformation.

Civil engineers have traditionally performed a leading role in the planning, execution and management of urban development although their focus was largely on technical matters (Wall, 1990). This role had, however, been performed under a set of circumstances that in many respects now no longer apply. The transformation from the previous to the current situation has been so abrupt that many civil engineers now find themselves in a situation where they do not always fully appreciate the implications of the new circumstances. Such lack of appreciation for the factors impinging on urban development invariably leads to a sub-optimal approach to urban projects (Viljoen, 1986; Viljoen, 1990 and Bastani, 1986).

The importance of a thorough appreciation for all factors affecting urban development was the basic motivation for undertaking this report on an all encompassing level, rather than concentrating on any specific aspect. Furthermore, civil engineers acting as project managers for very large urban expansion projects such as the current KwaZulu / Natal upgrading projects with a combined value of R1 200 million, must be capable of understanding the overall picture in addition to focussing on individual projects.

Urbanisation in the most developed countries, such as the European countries and Britain has reached levels of between

85% and 91% (Mallows, 1988). In contrast, depending on the definition of urbanisation, only approximately 50% to 60% of the South African population has been urbanised, which implies that the long term potential for further urbanisation is enormous (Urban Foundation, 1990a; Mallows, 1988; Thompson and Coetzee, 1987 and Tomlinson, 1990). It is thus expected that a high rate of increase in urbanisation will continue well into the next century. Given the expected future importance of urbanisation in terms of national priorities and the expected magnitude of spending on infrastructure and housing, it is likely that urban development will continue to be a very important facet of civil engineering for the foreseeable future.

1.2 OBJECTIVES AND LIMITATIONS OF THIS INVESTIGATION

The artificial prevention of the natural urbanisation process, and the subsequent sudden lifting of the restrictions, have created a situation that is certainly peculiar to South Africa. While rapid urbanisation is also occurring in other parts of the world, for instance in South America, and while we can learn much from the experience in those countries, the situation in South Africa is in many respects unique.

Due to the fact that the changes on the South African urbanisation scene occurred relatively recently, very little has been published locally to guide the South African civil engineer in providing him with a holistic overview of factors that may impinge on urban development projects. However, it must be conceded that research has been undertaken on almost all the individual problems identified in the report, albeit not always in a format directly applicable to the situation at hand. For instance, while community participation is a topic that has been well researched, the research is, in the author's opinion, not particularly relevant to the situation described in the two case studies.

Many of the micro issues covered in the report have been researched by the World Bank and the Development Bank of Southern Africa, and the experience of these two organisations is frequently drawn upon throughout the report. However, as far as could be established no previous research has been undertaken on the specific topic of this investigational report.

The author was seconded to the the urban division of the Development Bank of Southern Africa for the period September 1987 to December 1988. At the time of writing he was still associated with the DBSA as external consultant. Many of the issues discussed in this report stem directly from his involvement with DBSA funded projects, but subsequent experience on other projects has underlined the relevance of the factors identified. During this period the author realised that an overview of relevant aspects of the urbanisation process, and an identification of critical issues would be of great value to civil engineers, and particularly project managers, involved in urban development projects.

The objectives of this investigational project are thus:

- to provide a brief overview of those aspects that are considered relevant to an understanding of the black urbanisation process.

- to identify and review the most critical factors affecting large urban development projects and, where possible, to briefly suggest practical approaches for addressing these issues.

A third, but lesser objective, is to reflect briefly on the implication of the identified factors for the role of the civil engineer as project manager.

The topic as identified above is very wide. This imposes limitations on the depth to which any specific aspect can be investigated. It is furthermore difficult to define the boundaries of the investigation accurately. This leaves this project open to criticism for not addressing a particular aspect or for not going into sufficient detail, although reference is made to specific case studies. However, because of the importance of urbanisation, the subject of this report is believed to be topical and it was thus considered appropriate to undertake the investigation on this level.

This investigational report was largely written during 1989. The political changes that occurred since February 1990 also affect the urbanisation scene, e.g. the current (October 1990) drive towards non-racial local authorities for urban complexes, brought a new dimension to the fore that was not contemplated at the time of writing. This investigation must thus be judged against the circumstances that prevailed during 1989. It is nevertheless believed that the major conclusions reached will be even more valid in a new political dispensation.

1.3 METHODOLOGY FOLLOWED WITH THE INVESTIGATION AND ORGANISATION OF THE REPORT

The methodology followed with this investigation was firstly to undertake a literature survey of factors that were considered to be indispensable background information for civil engineers involved in the developing urban areas. It was deemed necessary to undertake such investigations in order to serve as a basis for the balance of the work. For instance, the meaning of the concept development was investigated as it was believed that the statements and conclusions contained in the balance of the report could be misinterpreted should they not be seen in context.

Similarly, aspects such as inward industrialisation were investigated as these serve as basis for certain premises later in the report. These aspects are contained in chapter 2.

In order to obtain an overview of some of the most important organisations currently active in the development of urban areas, a brief survey of the policies and approaches of such organisations were conducted and this is reported on in chapter 3.

In order to realise the second objective of the investigational project as set out in paragraph 1.2, it was decided to conduct two case studies of large urban development projects that have been undertaken in the recent past. The experiences from the case studies and the problems identified were then analysed, and where possible practical approaches to the problems were investigated. This constitutes the main part of the report.

The two case studies are contained in chapters 4 and 5. Chapters 6 to 9 analyse the problems and constraints identified, and suggest practical approaches for addressing the issues.

The last chapter, chapter 10, contains a summary of the most important factors affecting large urban development projects. The implication of these factors for the role of the civil engineer in urban development is also briefly discussed.

It must be emphasized that the objective of this investigation is an overall and holistic review of factors affecting urban development and urban development projects, and not an in-depth investigation of any specific issue. The conclusions reached about an appropriate role for the civil engineer remain general and it is suggested that this be further explored through additional investigations.

CHAPTER 2

ISSUES IN URBANISATION

2.1 INTRODUCTION

Chapter 2 is essentially a literature survey of aspects that are important background information pertaining to black urbanisation. The objectives of this chapter are firstly to investigate those issues of which a thorough understanding is indispensable for an evaluation of the premises in the rest of this report. The second objective of this chapter is to summarize background information related to black urban development, in such a manner that it will assist project managers to obtain a better understanding of the socio-economic environment wherein urban projects have to function.

The first part of the chapter provides a brief overview of historic patterns and trends in black urbanisation. The second part provides a general overview of some of the socio-economic conditions in the black urban areas of South Africa. The third part focuses on economic considerations pertaining to urbanisation.

The scope of this chapter is wide and it is impossible to describe in full all relevant factors pertaining to black urbanisation. The objective with this chapter was therefore rather one of describing some of the important determinants and issues of the urban development process while accepting that a detailed overview of all factors cannot be provided within the scope of this investigational project. Policy and legal issues have for instance not been addressed.

2.2 BLACK URBANISATION: HISTORIC PATTERNS AND TRENDS

This section takes a brief look at the history of black urbanisation in the SATBVC (South-Africa, Transkei, Bophuthatswana, Venda and Ciskei) states and discusses possible future scenario's for urban development. The investigation is included to present a general, rather than an exact picture of historic urbanisation trends in the SATBVC states. Since up to date figures are not available, earlier projections are used. It is furthermore important to note that estimates on urbanisation are rather subjective and therefore differ considerably from one source to another.

The TBVC and self-governing states are political rather than economic entities, and their populations are becoming increasingly dependant upon the formal urban-based sector of the SA economy, which is outside their boundaries. Because of the economic interdependence between the SATBVC countries and because of the migrant labour system which result in the movement of people across borders, it is not considered realistic to assess urbanisation for SA alone, therefore the approach adopted with this investigation is one of assessing urbanisation for the SATBVC region as a whole.

Official estimates of the sizes of the urban population and the levels of urbanisation from 1904 to the year 2000 are shown in table 1 (Thompson and Coetzee, 1987). Figure 1 depicts the historic and expected future composition of the urbanised population of the SATBVC states.

TABLE 1 : URBAN POPULATION AND LEVEL OF URBANISATION OF THE SATBVC STATES

	WHITES			COLOUREDS AND INDIANS			BLACKS			TOTAL	
YEAR	NUMBER	%URBAN	%URB POP	NUMBER	%URBAN	%URBAN POP	NUMBER	%URBAN	%URB POP	NUMBER	%URBAN
1904	588	53	49	270	48	22	353	10	29	1 210	23
1921	848	56	49	301	43	17	587	13	34	1 736	25
1946	1 719	72	41	740	61	18	1 689	22	41	4 149	36
1960	2 582	84	35	1 428	72	19	3 471	32	46	7 481	47
1970	3 274	87	31	2 067	78	20	5 070	33	49	10 410	48
1980	4 007	88	30	2 743	80	20	6 802	33	50	13 552	47
2000	5 530	95	16	4 330	92	12	25 280	75	72	35 140	79

SOURCE: THOMPSON & COETZEE, 1987

NOTES:

(1) Numbers are in 1 000's

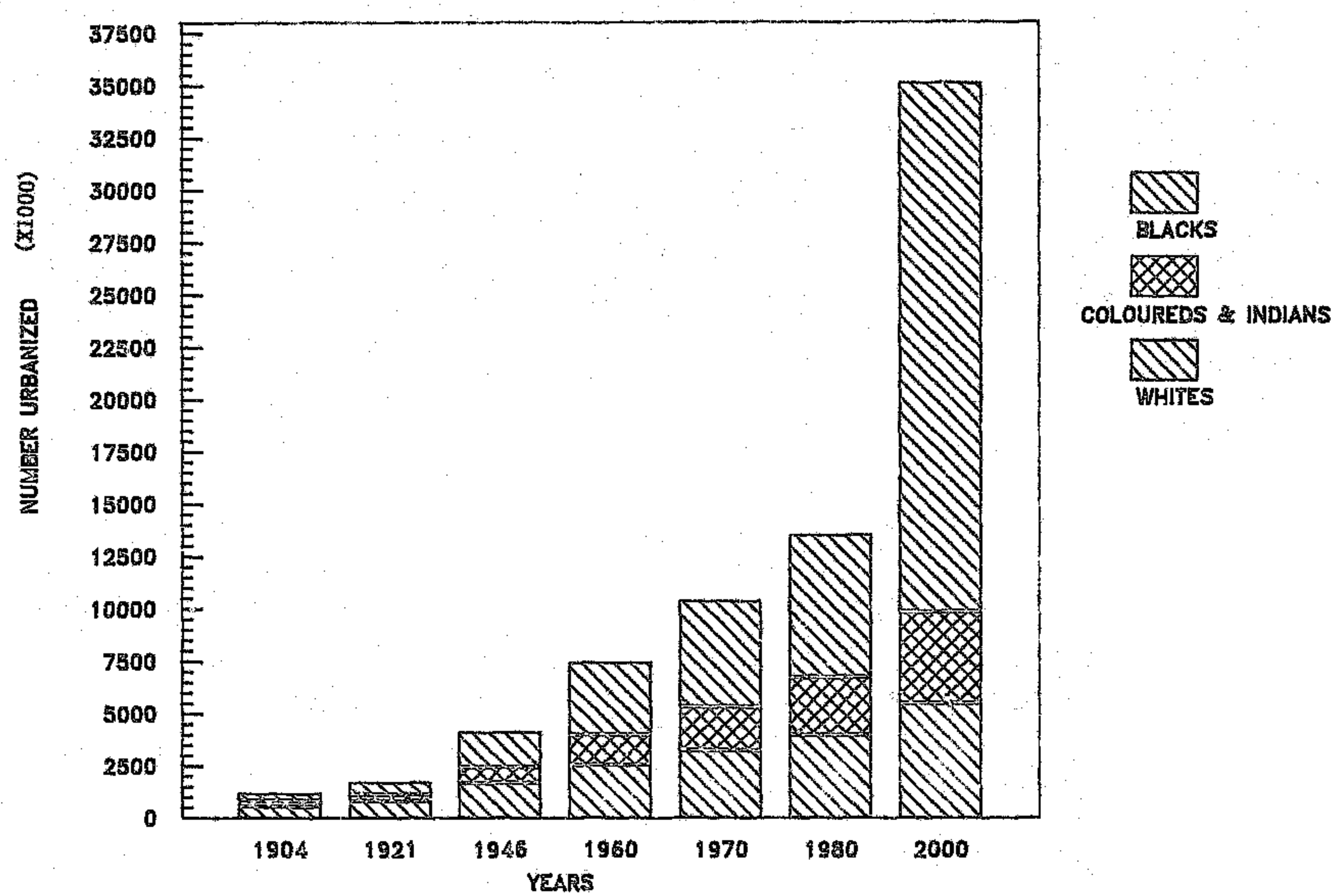
(2) Official population figures were used

(3) % Urban refer to the percentage urbanised

(4) % Urb pop refer to the percentage that a particular population group constitutes of the total urbanised community.

FIGURE 1:

GROWTH OF THE URBAN AREAS FOR SATBVC COUNTRIES



From Table 1 it is evident that the level of urbanisation for all population groups rose rapidly between 1921 and 1960 from 25 to 47 percent of the total population, but remained virtually unchanged between 1960 and 1980. The table also shows that the level of urbanisation amongst Whites, Coloureds, and Indians continued to rise significantly after 1960 and is currently fairly high, while the level among blacks remained more or less unchanged at a low one third of the population.

Table 1 and figure 1 represent official statistics on urbanisation. These statistics are, however, not necessarily accurate (Urban Foundation, 1990a). Accurate estimates of the size and distribution of the urban population are not available, firstly because of the number of blacks resident in urban areas but not enumerated in population censuses, and secondly because only the residents of formally proclaimed townships are officially recorded as urban dwellers, while the size of squatter settlements are unknown. It is therefore evident that the actual level of urbanisation among blacks was much higher than the historic figures quoted. It has been estimated (Thompson and Coetzee, 1987 and Simkins, 1981) that the actual level in 1980 was 50% for blacks and 58% overall, rather than the official figures of 33% and 47% respectively (Tomlinson, 1990 and Urban Foundation, 1990a). Be it as it may, even if the huge difference in the urbanised black population of 1980 and the year 2000 as depicted in figure 1 do not represent an actual increase in population, it is at least an indication of the number of people that have not been provided for in the urban areas and that must now be officially accommodated in the areas that are being developed.

De Lange (1988) extrapolated population growth further into the future. He estimates that South Africa's population of 36,5 million is expected to grow to between 94,4 and 118 million by the year 2038. At that stage blacks are expected to constitute between 87% and 89% of this country's population. The long term implications for the growth in the urban population is obvious, at an 85% urbanisation rate the urban population will amount to approximately 85 million. It is furthermore interesting to note that de Lange (1988) maintained that South Africa could not support a population of more than 80 million and a population of more than a 100 million would seriously overtax resources.

There is little doubt that the size of the urban population is destined to grow dramatically over the next few years (Thompson and Coetzee, 1987 and Urban Foundation, 1990a). The urban population of the year 2000 is expected to be about two and a half times the official population of 1980 and over twice as large if 3,4 million unofficial urban dwellers are assumed to have been present during 1980. This means that over a period of twenty years as many people will need to be accommodated in urban areas as have been over the last hundred years. The expected increase of the black (and mostly poor) urban population is even more dramatic, with the number by the year 2000 expected to be 3,7 times the official population of 1980, and about two and a half times the official and unofficial figures taken together.

A comparison between the urbanisation levels in the SATBVC states and that of the developed countries underlines the huge potential for further urbanisation. While the official and unofficial urbanisation rates in 1980 for the SATBVC countries are 47 and 58% respectively, West Germany was 85% urbanised, Australia 86% , the Netherlands 89% and Britain, the most urbanised country, 91% (Mallows, 1988).

A comparison with other developing countries with similar economic structures and levels of per capita income as that of the SATBVC states, provides an indication of the extent to which natural patterns of urbanisation in the SATBVC states have been retarded by policy and other measures. The official urbanisation levels in 1980 were 69% for Brazil, 68% for Mexico and 83% for Argentina (World Bank, 1984)

It is thus evident that there is a huge potential for urban development in the SATBVC states and that a rapid urbanisation rate can be expected in the foreseeable future (Urban Foundation, 1990a).

2.3 SOCIO-ECONOMIC CONDITIONS IN THE DEVELOPING URBAN AREAS

Socio-economic studies are usually undertaken for a specific area. However, this report addresses issues from a national perspective and therefore takes a brief look at the socio-economic conditions of the existing urbanised black population in general, and at the conditions of those who are likely to be moving to the urban areas in the near future.

Thompson and Coetzee (1987) concluded that socio-economic conditions in the urban areas of the SATBVC states vary according to racial, class and geographic factors. In general Whites enjoy high standards of living, occupy the better paying jobs and benefit most from infrastructural expenditure. Conditions are less favourable among the Coloured and Indian communities, both because levels of income and employment are on average lower and because of a shortage of residential land and funds allocated for housing and infrastructural development. In addition, many Coloured and Indian families live far from their places of employ and have to travel long distances to work.

Black urban communities are on average the worst off, not only because of their position in the labour market, low average levels of education, the unaffordability of conventional housing units for most, but also because of neglect on the part of the authorities and official policy. This policy until recently viewed most blacks as temporary residents of South-

Africa and promoted the creation of a migrant and commuter work force from the TBVC and the self-governing states.

The socio-economic conditions in the black urban areas of South-Africa are described in this section under the headings of unemployment, income distribution and poverty, and housing.

2.3.1 Unemployment

According to Pillay (1984) unemployment amongst blacks in the urban areas of South Africa is rife, with estimated unemployment figures varying between 15 and 30 percent. Unemployment is mainly concentrated among women and workseekers below the age of 25 years. Meintjies and Spannenberg (1988) provide a more detailed picture of the South-African unemployment situation. They calculated that unemployment amongst blacks reached a rate of almost 18% in September 1987.

Lighthelm and Kritzinger-van Niekerk (1990) submit that the percentage of the work force without formal sector employment opportunities increased from 25% in 1974 to about 42% in 1989. They furthermore estimate unemployment during 1989 at 14,7% of the economically active population, which represents an increase of 6,3% over the corresponding figure for 1980. Unemployment varies significantly from region to region with the Estern Cape (Region D) having had the highest unemployment rate of 24,3% during 1989.

The most striking feature of the manpower situation in SA is, however, the imbalance between population growth and the growth in the demand for labour in the long run (Meintjies and Spannenberg, 1988). The authors provide a number of causes for this alarming phenomenon which will not be discussed here. It is interesting to note however that the use of inappropriate technologies are cited as one of the causes. The increased use of inappropriate technologies is ascribed to the availability of advanced labour saving techniques on the one hand, and an increase in the cost of labour on the other.

It is estimated that (Meintjies and Spannenberg, 1988) the surplus in skilled labour for all population groups will increase from 0,2 million in 1980, to 1,7 million in 1990, to 3 million in the year 2000. For the same period the surplus in unskilled labour is expected to increase from 0,6 million, to 1,4 million, to 1,7 million. It is thus evident that there is a remarkable slower increase in the expected rate of employment of totally unskilled labour in comparison to skilled labour.

The above figures clearly illustrate the need for labour-intensive technology and furthermore underline the principles of inward industrialisation and a rapid expansion of the informal sector (refer to section 2.4). The increase in the number of skilled unemployed labourers should be seen as an advantage and not as a factor inhibiting labour-intensive methods. Labourers with some form of skill have the potential of rising through the ranks of employment and to serve as a stimulus in the creation of an employment multiplier in both formal and informal sectors of the economy (Meintjies and Spannenberg, 1988).

According to the President's Council Report on a Strategy for Employment Creation (1987), the increase in the rate of expansion of the SA economy has been declining for more than fifteen years. The decline in the rate of economic growth has been accompanied by an even sharper rate of decline in employment growth rates. The report estimates that there was a surplus of 3,3 million workers outside of the formal sector during 1980.

The report emphasizes that unemployment is mainly of a structural nature and that it can be alleviated but not solved by a cyclical upswing in the economy. This structural imbalance will represent acute development problems for the future. Based on an optimistic assumption of over three percent in annual growth rate up the year 2000, a total of 44% of the total labour force will have to be employed in the non-formal sector.

2.3.2 Poverty and Income Distribution

The Second Carnegie Report on Poverty (Wilson and Ramphele 1989), provides a comprehensive picture on the extent of poverty in Southern Africa. The report sketches a desperate picture of blacks living in precarious conditions of famine and destitution in Southern Africa, especially in the four Independent States and the six self-governing states where 81% of the inhabitants live under the MSL (minimum subsistence level). As far as the whole of South-Africa is concerned, it is estimated that 50% of the population lives below the MSL.

These statistics apply to Southern Africa as a whole and it could be reasoned that poverty in the urban areas is not of the same magnitude. This may be true to a certain extent, but the few statistics below indicate that the poverty also exits in these areas. A substantial portion of black households in the metropolitan areas have incomes below the minimum living levels (MLL). It was for instance estimated that 28,4% of the black population of Johannesburg had incomes below this level while 41,4% had incomes below the supplementary living level (SLL) which is the minimum necessary for a modest low standard of living (Thompson and Coetzee, 1987). Poverty in other areas, for instance the Durban area, is even worse where between 41% and 67% of all households earn less than the MLL. Poverty among the black inhabitants of smaller towns is even more acute than the metropolitan areas, for instance it was found that 74% of black households in Port Alfred earned less than the MLL.

Considering the expected accelerated rate of urbanisation as discussed in paragraph 2.2, and the fact that the many of the new urban arrivals can be expected to come from the poorest sections of the population, it can be expected that poverty in the urban areas will become increasing serious over the next fifteen to twenty years and beyond.

2.3.3 Housing

This section provides a brief overview of the current situation pertaining to the provision of housing for urban blacks. The matters that will be dealt with are demand and backlog with specific reference to affordability. The issue of land allocation will also be dealt with in a summarized format. This analysis of the housing situation is not comprehensive, but rather focuses on some of the current key concerns in this field.

Housing demand and affordability

In the past Government assumed responsibility for providing housing for virtually all income groups in the urban black community. Government was certainly the only major actor in the field of housing for the low income group. A huge housing backlog has resulted over the years and this, coupled with Government's latest positive attitude towards black urbanisation and the concomitant sharp increase in influx of people to South-Africa's urban areas, has resulted in an ever increasing backlog in housing.

Numerous divergent projections have been made of the housing backlog in South Africa. Business Day (25 November 1986) quote the Carnegie inquiry into poverty by stating that SA's backlog amounts to 4 million units by the year 2000 (inclusive of the SATBVC countries). The Sunday Times (6 December 1987) quoted minister Heunis stating that there was a shortage of 342 487 units outside of the homelands at the end of 1986. Engelbrecht and Venter (1983) calculated the projected shortage at the year 2000 to be 4 million units for Southern Africa (SATBVC states). A recent report from the Urban Foundation (1989) estimates a current backlog in South Africa of 800 000 units with an estimated additional 2,3 million units required by the year 2010, which represents an annual demand of 121 500 (refer to table 2). A more recent report by the Urban Foundation (1990b) states that 174 000 houses per annum are required up to 1995. The South African Housing Trust (Annual report, 1988) estimates a shortage of 700 000 housing units for South Africa, and estimates that approximately 2 million new houses will have to be built up to the year 2000 which represents an average of 210 000 houses per annum.

This must be seen in the light of the fact that only about 25 000 houses were in fact built in 1986 and not more than 30 000 in 1987. No doubt this has been improved upon during 1988, however the backlog remains great (Lombard, 1988).

The above figures are merely an indication of expected housing shortages and of the magnitude of the problem. It is clear that enormous backlogs exist and the question is no longer whether it exists but how it should be dealt with and what strategies are needed to alleviate the situation.

The above "theoretical" calculations are borne out in practice where social-economic surveys often find that population densities are on average in the order of 14 to 17 people per stand. The author has come across a situation of 47 people occupying one stand[1].

The financial realities of the black community is such that the majority will not be able to afford to own a formal house, that is one built according to a building plan, by the formal building industry and with conventional building materials.

1) Observation by the author during his involvement in Thabong (refer to Capter 5).

TABLE 2 : BLACK HOUSEHOLD HOUSING DEMAND

MARKET SEGMENT	PRODUCT PRICE RANGE	MONTHLY INCOME REQUIRED	BACKLOG		ADDITIONAL DEMAND (1988-2010)		TOTAL HOUSING DEMAND (1988-2010)		UNITS ANNUALLY REQUIRED (1988-2010)
			NO	%	NO	%	NO	%	
CONVENTIONAL HOME	R35 000 +	R1 095 +	40 000	5	233 261	12	273 261	10	11 881
STARTER HOME	R15 000 - R35 000	R 469 - R1 094	200 000	25	729 689	37	929 689	33	40 421
INFORMAL UNIT	R 3 500 - R15 000	R 162 - R 468	400 000	50	669 878	34	1 069 878	38	46 516
PRIVATE RENTAL		Less than R162	160 000	20	360 858	18	520 858	19	22 646
TOTAL			800 000	100	1 993 686	100	2 793 686	100	121 465

SOURCE: URBAN FOUNDATION, 1989

NOTES:

(1) Required monthly income calculated on basis of:

- first time home buyers subsidy (not applicable to R3 500 - R15 000 price range)
- 10% deposit
- 18% interest over 20 years
- loan repayments smaller than 30% of joint income

(2) The breakdown was based on PWV figures adjusted to obtain a national picture

(3) Conventional homes:

- formal builders
- stands with high levels of infrastructure
- financed by formal financial institutions

(4) Starter homes:

- non-complete houses with a low level of finish
- built by formal builders
- lower infrastructural standards
- finance by some formal financial institutions.

(5) Informal units (incremental units):

- temporary dwelling built by families from unconventional materials
- includes site and service schemes and upgrading of informal settlements

(6) Private rental:

- family rents accommodation from owner
- includes backyard shacks

The affordability reality based on the income profiles of black households as illustrated in table 2 (Urban Foundation, 1989) and depicted in figure 2, shows that only 10% of the blacks can afford a house worth more than R35 000, 33% can afford a home of between R15 000 and R35 000, 38% can afford a house costing between R3 500 and R15 000, and the rest (19%) can only afford shelter costing R3 500 or less.

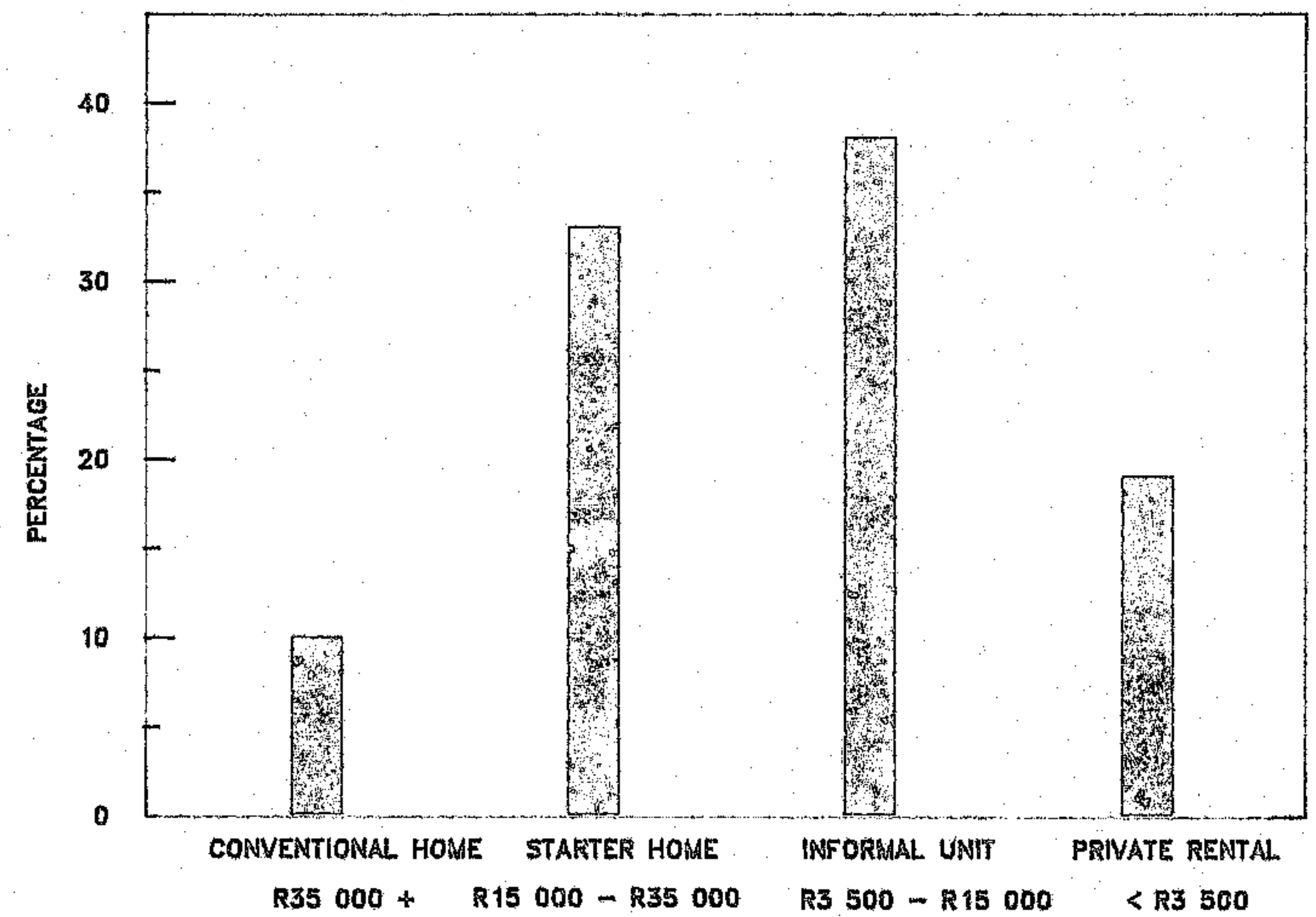
Land for urban development

Due to the official policies of the past, allocation of land for black urban development has not nearly kept pace with the rate of housing need. The Government has recently responded by allocating huge pieces of land for urban development. Up to February 1988 the Department of Development Planning identified 37 000 hectares for black urban development. This is an enormous area considering the greater Soweto area (including the Kagiso areas) covers only 7800 ha (Finance Week, 14-20 April 1988). The land already identified in the PWV area alone already covers more than two Soweto's.

It is interesting to note that based on a density of 20 stands per hectare, the current backlog (excluding private rentals) as depicted in table 2, represents 32 000 ha which implies that land earmarked for development up to this stage is only sufficient to cater for the current backlog. The expected additional demand (see table 2) represents a further 82 000 ha that will have to be found up to the year 2010. The Urban Foundation's estimate of an annual backlog of 174 000 houses up to 1995, translates into an additional land need of 8 700 hectares per annum (Urban Foundation, 1990b). The Foundation underlines the importance of this finding by stating that: "This is not a marginal addition of land supply ... but a challenge of a new order of magnitude."

FIGURE 2:

BLACK HOUSEHOLD HOUSING DEMAND



2.3.4 Social Infrastructure

The social infrastructure of a town or city is often a good indication of the level of development that has taken place in that particular area. In the development of the black urban areas in South Africa the emphasis has so far almost exclusively been on the provision of houses. The citing of housing statistics, both by the press and politicians alike, in order to illustrate how far development has fallen behind, has become fashionable. What is often forgotten, however, is that towns and cities do not consist of houses alone. Social infrastructure make up a considerable portion of investment in urban areas.

Social infrastructure can be described as that part of the infrastructure that has a direct impact on quality of life in the urban areas. The most important elements are:

- health care facilities
- welfare
- education and training
- security and police
- religious establishments
- sport and recreation facilities
- cultural facilities
- public transport facilities
- facilities for local authorities (eg effective engineering and financial departments) and civics

Although very few statistics are available, the author believes that the development of the social infrastructure for SA's urban blacks has fallen way behind[1] (Finansies en Tegniek, 21 April 1989).

1) Observations by the author in a number of townships

2.4 ECONOMIC CONSIDERATIONS

Engineering projects never take place in isolation. They are an integral part of the economic development process, albeit seen by few engineers in this context. It is considered of paramount importance that engineers involved in urban development projects should be aware of the economic environment pertaining to their projects and of the implications of this environment for their projects. Engineering projects can furthermore be used as ideal vehicles for attaining economic development goals, especially in the black urban areas where the rate of development is such that projects which are correctly structured can have a significant impact on economic development.

This section is an analysis of some of the most important economic issues pertaining to the development of black urban areas. The aspects that will be specifically addresse are the difference between the terms "economic" and "financial", the meaning of economic development, the macro economic environment and the implications for urban development, the principle of inward industrialisation and the economic importance of urbanisation.

2.4.1 Economic vs Financial

There is often considerable confusion in the minds of engineers and other laymen about the difference between the terms "financial" and "economic". Both terms refer to the profit and loss of an investment. The term "financial", however, refers to the money profit and loss accruing to the project operating entity. The term "economic" on the other hand, refers to the social profit and loss of the project on the economy as a whole. Thus a money payment on a project for say wages, is a financial cost. But it will be an economic cost only to the extent that the use of labour on this project implies some

2.4 ECONOMIC CONSIDERATIONS

Engineering projects never take place in isolation. They are an integral part of the economic development process, albeit seen by few engineers in this context. It is considered of paramount importance that engineers involved in urban development projects should be aware of the economic environment pertaining to their projects and of the implications of this environment for their projects. Engineering projects can furthermore be used as ideal vehicles for attaining economic development goals, especially in the black urban areas where the rate of development is such that projects which are correctly structured can have a significant impact on economic development.

This section is an analysis of some of the most important economic issues pertaining to the development of black urban areas. The aspects that will be specifically addressed are the difference between the terms "economic" and "financial", the meaning of economic development, the macro economic environment and the implications for urban development, the principle of inward industrialisation and the economic importance of urbanisation.

2.4.1 Economic vs Financial

There is often considerable confusion in the minds of engineers and other laymen about the difference between the terms "financial" and "economic". Both terms refer to the profit and loss of an investment. The term "financial", however, refers to the money profit and loss accruing to the project operating entity. The term "economic" on the other hand, refers to the social profit and loss of the project on the economy as a whole. Thus a money payment on a project for say wages, is a financial cost. But it will be an economic cost only to the extent that the use of labour on this project implies some sacrifice elsewhere in the economy with respect to output and other objectives of the country. Another example is that of interest payments. The payment of interest by a project entity on a domestic loan merely transfers purchasing power from the project entity to the lender and as such represent a financial cost but not an economic cost (Squire and van der Tak, 1981). The two types of cost may not coincide. Economic costs may be larger or smaller than financial cost. Similar arguments apply to economic and financial benefits.

2.4.2 What is Development?

The basic economic problem facing all countries is that of allocating limited economic resources (such as labour, capital, natural resources and entrepreneurship) to a variety of different uses and services in such a way that the net benefit to society as a whole is as large as possible. Because resources are limited, choices must be made amongst competing uses.

In trying to establish the exact meaning of the phrase "economic development" or just "development" one comes to the conclusion that virtually each development institution and each economist has their own definition of what this concept entails. Statements such as "to help the people to help themselves" or "planning by the people for the people" (van der Kooy, 1988) or "to give all people the opportunity to lead a full life" or "to create capacity so that people can satisfy their needs" or "an improvement in the general quality of life" (Bastani, 1986 and Meintjies and Spannenberg, 1988), are rather vague, to say the least. Others would refer to goals such as self-realisation, self-reliance, independence, freedom, political rights or basic needs (Bastani, 1986 and Meintjies and Spannenberg, 1988).

One of the widely quoted definitions (Squire and van der Tak, 1981) is that economic development concerns a community's limited economic resources in a long term process aimed at preserving the good and improving the less good in community life. According to this definition economic development concerns a lasting change in the local economy so that it will better serve social goals. A distinction should be made between economic development and near-term measures designed to solve immediate problems. Measures to solve immediate problems may or may not serve long-term economic development and could conceivably work against it.

Todaro (Meintjies and Spannengerg, 1988) described development as a sustained process of upliftment of the entire community and social system. A central concept in the definition is that of improvements in the quality of life. According to Todaro the latter concept consists of three basic dimensions, ie sustenance, self-esteem and freedom, of which only the first concept, namely sustenance is quantifiable to some extent.

With such a diversification in development goals, it is no wonder that development approaches also differ widely. According to Van der Kooy (1988), in all the years of development effort, the different approaches to development viz, neoclassical or marxist, basic needs or self-reliance, top-down or grassroots, balanced or unbalanced, rural or urban, to name but a few, have in one way or another been applied by development agencies. The "right" approaches, if they exist, have however not been found. One thing is therefore certain, there are no panaceas, and there are no single or simple answers to development. Garzia-Bouza (1980), amongst others, is of the conviction that almost all development initiatives over the last few decades, have made little progress towards a permanent change in the living situation of the poorest strata of the developing societies (Bastani, 1988).

From the above discussion it appears that development is often so broadly defined that it encompasses practically all good things, that is all economic, social, cultural, political and other goals and values that a society may only wish for. It is evident however that social development must be considered jointly with economic development. Meintjies and Spannenberg (1988) assess development progress in SA under the headings of economic growth, distribution of economic activity, employment creation, and basic needs. This approach was followed in this report.

Economic growth

Prior to the nineteen sixties development was viewed as synonymous with growth. A high economic growth rate was considered to be the one and only goal in achieving progress and prosperity. It was accepted that an improved economic growth rate would lead to sustained growth and consequently to a narrowing of the gap between the developed and the developing sectors of the community. Subsequently, it was however realised that a high economic growth did not necessarily improve the living conditions of the masses. The so called trickledown-effect did not materialise: despite high economic growth rates poverty and unemployment among the masses in developing countries reigned supreme. The benefits of a high economic growth rate are thus not necessarily reaped by the entire population.

Growth is therefore not synonymous with development, however it is often useful to employ growth rates (gross national product, or gross geographic product) as indicators of development.

Distribution of economic activity

The criticism against economic growth as the only measure of development is especially valid in South Africa, where the crux of the development problem lies in the distorted distribution of economic activities and economic welfare between the different geographic areas. For instance, the rural areas of SA (outer peripheral) generated only 5% of the countries GGP during 1986, while accommodating 42% of the countries' population.

Although no statistics could be found, the same distorted distribution of economic activity can be found on a micro scale. Consider for instance the large discrepancy between economic activity of Johannesburg and Soweto.

The redistribution of benefits to the developing communities must therefore surely be one of the objectives of an economic development strategy for SA. Lombard (Engineering, August 1987) states that the supreme achievement of the political economy in the 1990's must be a phenomenal improvement in the material condition of poor people in SA. He continues "the crux of the problem lies in finding the most effective means to improve the distribution of income in SA." Such a redistribution must however be achieved under conditions of rapid economic growth rather than a stagnating economy. The concept of redistribution of economic activity: therefore links closely to the idea of inward industrialisation (refer to paragraph 2.4.3).

Employment creation

The creation of job opportunities serves the goals of a better distribution in economic activity, alleviation of the plight of those without employment, as well as an optimization of available resources thereby contributing to a higher growth rate. If the goal of a more equal distribution in economic activity is combined with employment creation, a strategy should evolve that is not merely directed at the creation of job opportunities, but at more job opportunities that would provide an adequate income with which an acceptable standard of living could be obtained, particularly for the poorest 40% of the population.

Basic needs

The basic-needs-approach to development is concerned with relieving mass deprivation. It is aimed at improving the income earning opportunities of the poor, the public services that reach the poor, the flow of goods and services to meet the needs of all members of the community and improving participation of the poor in the ways in which their needs are met.

The basic needs approach spells out in considerable detail, human needs in terms of health, food, education, water, shelter, transport, simple household goods, as well as non-material needs such as participation, cultural identity, and a sense of purpose in life and work, which interact with material needs (Streeten, 1980).

Synopsis

Development is often so broadly defined by some that it encompasses virtually all good things. All economic, cultural, social, political and other goals that a society may wish for are often included under the term development. However defined, social factors must be considered jointly with economic factors and economic development.

Traditionally engineers assumed that "development" meant "physical development". Wall (1990) confirmed that such a definition is no longer valid when he stated: "Development is no longer a matter of overcoming technological problems. The development process needs also to address the problems and opportunities in the physical, economic, financial, political and institutional fields, among other."

For the purpose of this report it was assumed that development is a combination of economic growth, employment creation, a more equal distribution in economic activity and a provision of the basic needs of people. The weight or importance that must be allocated to each of these four factors should be determined on the basis of the particular circumstances. The content of economic development will depend on the specific circumstances prevailing at the time when economic development is planned and also depends on the objectives of the community for which the development project(s) is being planned. For one community, economic development may mean preserving things exactly as they are, for another it may mean maximizing the rate of growth of economic activity. For another it may mean diversifying the array of economic activities in the community as a means of imposing a desired quality upon the otherwise acceptable rate of economic expansion (Bendavid-Val, 1980).

2.4.3 Macro-Economic Considerations

The macro-economic national scene

Lombard (1988) analysed the macro-economic scene and came to the conclusion the most likely state of affairs for the immediate future, is largely a continuation of the present state of affairs. This is not a rosy picture as it points to a stagnating economy (Ligthelm and Kritzinger-van Niekerk, 1990). Some of the salient features are:

- Since 1974 the growth in the GDP in real terms has been hardly more than 1% . This is a very slow growth rate even by standards of industrialized countries whose populations are no longer expanding.

- Employment has hardly increased over the past decade except in government, and in finance where professionals have been concentrating on investing in stocks and shares. Blue collar work has been expanding very little.

- According to Reserve Bank calculations the profitability ratio in practically all industries showed a markedly declining ratio in practically all industries over the past 12 years. However, in the sector "finance, insurance, real estate and business services" the ratio fully recovered its lost ground since 1981. It appears as if the intellectual talents of the community were being increasingly devoted to financial management. According to Lombard (1988) this is a very unhealthy state of affairs.

- During the period 1977 to 1987, the total net domestic investment (after provision for capital replacement) amounted to only 78% of net savings, the balance having been absorbed by government borrowing for non-capital purposes to the extent of 5% , and by investment abroad to the extent of 17%.

- The National Productivity Institute estimates that real productivity of capital invested has declined by about one third over the past decade. Part of the explanation of this trend seems to be that some of the effect of the capital investment was to replace labour rather than to increase output.

- SA had negative real interest rates for most of the past decade. The negative effect of low real interest rates has been on unemployment rather than on profits. Management will in general continue to replace labour through more capital-intensive methods of production for as long as the after tax cost of capital is exceeded by that of labour. Negative rates of interest literally mean that the community is paying management to replace labour.

- The structure of our stagnating economy is such that any cyclical upturn at rates faster than the warranted structural growth rate soon runs into a balance of payments constraint, particularly if the upturn is not export led. This means that SA has to utilize its existing productive capacity to the full, since the moment when this surplus productive capacity runs out, expansion becomes very difficult in the short run and very import prone in the long run.

- Due to the international debt standstill against SA, we now have to maintain surplusses on our current account to reduce the country's foreign debt rather than to build up reserves to pay for imports involved in a domestic cyclical expansion. Neither do we have access to the financial facilities of the IMF. These circumstances seriously hamstring the economy's recovery prospects (Lombard, 1988).

It is thus evident that the most likely economic scenario for the future is Clem Sunter's low road (Sunter, 1987). It is within this unaccommodating economic environment that urban development projects will have to be undertaken.

The economic implications of urbanisation

The orderly urbanisation of the Black population of South Africa is one of the countries greatest positive challenges at the present (Urban Foundation, 1990c). It is, however, a huge economic undertaking, both in the macro-economic sense of how much resources can be afforded for this purpose, and from the micro-economic perspective of who should do what and who should finance whom (Lombard, 1988). The average private company in making investment decisions does not have to concern himself with what the country can or cannot afford. As far as he is concerned the macro-economic issues assert themselves through the market mechanism, guiding the individual players through the prices and costs of the particular outputs and inputs involved in the specific projects. In considering the issues surrounding huge urbanisation projects of the scale necessary for the orderly urbanisation of South Africa's peoples, however, it is necessary to consider both micro and macro economic issues. The objectives of large scale urbanisation projects should obviously be determined from a national perspective which clearly exceeds the dimensions of a purely private venture. Urbanisation projects should be undertaken from the perspective of addressing the greatest and most urgent problem for the political and social order in South Africa, and as such it is necessary to consider whether the objectives are achievable from a macro-economic perspective, and if not, under what circumstances they could be (Lombard, 1988). The problem of finance on a macro level boils down to the question of whether the expenditure can be financed in a non-inflationary manner, that is to say without giving rise to a total domestic expenditure which exceeds the output potential of the domestic economy. Another way to put the same question is to say that the expenditure programme should not give rise to balance of payment problems unless finance can be raised abroad. A third equation saying the same thing expects the additional investment not to exceed the economy's saving potential plus the available finance from abroad.

Paying for urbanisation

Table 2 (paragraph 2.3.3) showed that on average 121 500 families must be accommodated annually up to the year 2010 to meet the existing backlog and expected future demand for housing. This must be compared to the 25 000 to 35 000 houses constructed anually over the past few years (refer to paragraph 2.3.3). Using the average house prices and the number of prospective home owners in each category in table 2, it is evident that approximately R2,0 billion per annum for the next 20 years will be required for the construction of dwellings (at current prices). Based on an estimated additional expenditure of R3 000 for bulk infrastructure and R5 000 for social infrastructure, the total capital requirement amounts to R3 billion per annum at today's prices. These figures are obviously no more than orders of magnitude (Lombard, 1988).

Lombard furthermore comes to the conclusion, that from a macro-economic point of view, and with the economy on the "low road", it is definitely not in a position to absorb successfully an additional expenditure of this magnitude and adds: "In the final analysis such calculations (with reference to macro-economic calculations) answer the question whether the savings to finance the investment will be generated even assuming that enough idle manpower and enterprise is available. It must be noted that more savings than R3 billion must be generated. The amount of the actual savings required exceeds R3 billion by the amounts necessary to finance the new capital formation also called for in the rest of the economy to produce the materials required in the construction and civil engineering industries. This could become a very large figure, several times the initial expenditure of R3 billion.

Even a programme which starts with 25 000 houses and another 25 000 serviced sites in a year, but expand at a rate of 20% per annum to overtake the backlog in 14 years, presents serious finance problems in the context of our "low road" scenario. The direct import leakage in year one probably amount to about R300 million to R400 million.

Economic activity outside the effects of the housing programme was so low in 1986 and 1987 that such imports could be afforded. Without the housing programme domestic growth would probably have been at least another one percent less than it actually was. But if this programme is expanded at a rate of

20 percent per annum in the years ahead, implying the same rate of growth proportional to the direct import leakage of the programme, foreign exchange problems will soon appear.

A more serious "balance of payments constraint" on the housing programme arises when the existing industries providing intermediate inputs for the construction and civil engineering operations reach full capacity and have to expand their capital intensive processes. The import content of that second phase in the dynamics of economic growth may in our "low road" scenario be vast and way beyond what can be expected to be financed from the likely growth in export receipts or from capital inflows."

Lombard continues by saying that the problem is not really one of a balance of payments constraint, but rather one of a too heavy dependance on capital inputs in our industrial production and construction process. Any process of capital formation contains a high import content, in contrast with manual labour, which is of course locally available. Moreover, the pattern of consumption from income paid to labour has a much smaller import content than that generated from income paid to owners of capital.

This implies that the process of urbanisation would be able to proceed at a much faster rate (from an economic perspective) if tenders for the various engineering and housing contracts did not go to producers with capital-intensive processes of production, but to labour-intensive producers.

Lombard concludes by saying that: "In view of the various resource constraints .... the programme (of urbanisation) would have to be carefully decomposed into those elements which require the least real resources and have few backward repercussions on imports, on the one hand, and those that can only be undertaken over time as scarce resources become available and as our basic economic reforms materialize."

De Kock (23 April 1989) confirmed this viewpoint when he announced that the increase in fixed investment since the second quarter of 1988, comes at an unfortunate time for the South African economy. This is in spite of the fact that the level of fixed investment is nowhere near its peak of the early eighties. It is furthermore interesting to note that according to de Kock a capital investment of R100 million can easily lead to an increase of R300 million in the economy due to the so-called multiplier effect.

Inward industrialisation

The traditional approaches towards economic growth in SA have been export-led-growth and import replacement. However, import replacement had its days in the sixties when it was economic to replace the kind of products we used to import. Nowadays the scope for import replacement is much less. Export promotion also has its problems as it is mostly capital-intensive.

The possibilities for exporting labour-intensive manufactures, on which the so-called newly industrialized countries have thrived, have possibly come to a saturation point in that these countries, having been first in the market, have exhausted the possibilities (Brand, 1987). Neither of these two strategies therefore provide opportunities for substantial economic growth, nor do they provide a base for massive employment, which is what our country needs most at present. The answer to this predicament appears to be inward industrialisation, which also goes hand in hand with a redistribution in income. The strategy of inward industrialisation is practically unlimited in its scope, due to increased demand for goods and services that an urbanised population needs (Lombard, 1987). The implementation of this strategy involves the expansion of employment and investment in industry of all sizes, from large industries to the informal sector. What is really at stake is the question of whether the industrial production is geared to supply the surging demand from rapidly increasing lower income groups in our cities. We are talking about the expansion of employment and investment in industry of all sizes, from large industries to backyard shows.

According to Lombard (Finansies en Tegniek, 20 May 1988) 4 million of the approximately 12 million job opportunities of SA's economy are provided in the informal sector. It is expected that the number of 4 million will increase to 6 million by the year 2000. The strategy for accommodating these people is to draw them into the formal sector by changing the production process into one that is less capital-intensive. If each of these 4 million people earn as little as R5 000 a year, it will mean that the potential purchasing power of the people in the formal sector will increase by R20 billion per annum, which represents 25% of all salaries paid in SA during 1987. If this amount is expended on basic goods and services such as housing, food, furniture, recreation and transport, the structure of SA's economy will be changed. The chances are that about 90% of the additional goods and services that will be purchased, will be manufactured, directly or indirectly by the people who will purchase it in the end.

The process of inward industrialisation is therefore bound to lead to a rise in the GDP and a reduction in unemployment without unduly increasing the strain on the balance of payments. The two pillars of inward industrialisation are deregulation and urbanisation, without which the process cannot get off the ground.

Inward industrialisation has important implications for urbanisation and for the civil engineer as project manager. This aspect is discussed in chapter 6.

2.4.4 Economic Importance of Urbanisation

It is often said that a nation's people should be adequately housed, own property and lead an integral family life in proper homes, since there are numerous social and political benefits if this can be achieved. This section is, however, concerned with the economic benefits of the urbanisation process and not the social benefits.

The Taiwanese, in the early stages of their economic growth, put housing way behind exports and education on their priority list and this strategy was rewarded with remarkable economic growth. However, the issues of the Republic of China were not what they are in South Africa today (Lombard, 1988). In South Africa the challenge of orderly urbanisation arose because, inter alia, of this country's political history and has to be accommodated as far as possible within the economic constraints that exist.

According to Lombard (1988) housing must not be regarded as purely a consumer good. Housing does create a flow of valuable output, and may well be able to compete quite objectively with the output of other forms of capital formation to which resources might be devoted. The main economic advantage of a widespread property and housing programme is the unique way in which home ownership enriches people through a special inducement to save in the form of mortgage payments and through the process of inheritance from one generation to the next.

Black urbanisation, correctly addressed, also provides a vehicle for the promotion of inward industrialisation, which has a number of benefits for our economy (see paragraph 2.4.3).

Lombard (Finansies en Tegniek, 20 May 1988) estimates that the 2 million urbanised blacks in SA have an income and spending pattern of approximately R31,5 billion per annum. This is more than the total budget of any other country in Africa excluding Nigeria, Egypt, Algeria and Libya.

According to Professor Mallows (1988) civilization is due entirely to urbanisation. In addition, an increase in productivity, a reduction in working time and the greater availability of consumer goods are benefits that occurred only because of cities. Only in cities can the economics of proximity, scale and location be optimized and can these increased benefits fuel a permanent, ongoing process of adaptation and invention.

Webber (1985) generalizes by saying that more than two-thirds of the populations of the industrialized countries are living in urban places, in the middle income countries more than half of the populations live in urban areas and the corresponding figure for low income countries is about one fifth. He therefore deducts that urbanisation is the counterpart of economic development and of rising-per-capita income.

City growth by immigration always includes large masses of poor people. But as the poor graduate into a productive and settled urban life, the benefits of the city starts to become evident (Mallows, 1988). It is only in the cities where those that are presently inadequately housed, very poor and without adequate sources of income have any chance of improving their living conditions.

According to Webber (1985) a metropolitan complex is in fact a massive communications switchboard through which all sorts of specialists are connected to each other and through which their independence are satisfied. Indeed, the only reason cities exist is because in cities connections are established between interdependent establishments and at a lower cost than elsewhere. Persons and businessmen congregate in cities only because costs of interaction with each other are less where distances between partners to transactions are short. The big cities of the world have been getting bigger, mostly because they are better (Bernstein, 1986).

Economists have proved that the economies of urbanisation increase with size and that the curve rises well beyond the size that any of South Africa's cities will reach in the foreseeable future (Bernstein, 1986). The search for an optimal city size has been abandoned as most studies support the conclusion that the largest cities are no less productive than the smaller ones and many studies support the conclusion that the largest cities are the most productive ones (Webber, 1985).

Cities in other parts of the world are much bigger than the biggest in Southern Africa. For instance, the projected PWV population in the year 2000 is such that it will be smaller than what New York was in 1950. In 1985 Mexico city had 18 million people and forecasts for the year 2000 anticipate the population to reach almost 30 million. This is closely followed by other cities such as Sao Paulo with 16 million and Seoul, Rio de Janeiro, Bombay etc (Webber, 1985 and Urban Foundation 1990a). Yet there is no basis to believe that over-urbanisation per se is detrimental to the efficiency goal of urban development (Webber, 1985).

It is not only in the economic indicators that the largest metropolitan certers excel. As compared to living conditions in other cities and in rural areas, conditions in the largest centers of the developing nations are unquestionably superior. Literacy levels are the highest. Rates of physical illness are lowest, medical care is best, and life expectations are the longest. Both calorie and protein intake in daily diets are greatest. Educational opportunities are typically the best available. Opportunities for employment in both formal and informal sectors are higher than in the rural areas and as a result per capita incomes are highest in the largest cities, and so are long-term life opportunities for children (Webber, 1985).

These comparisons are valid on average, but should also apply to South-African cities for these comparisons also describe the conditions of the most impoverished people, for they too are better off than they would be elsewhere (Webber, 1985).

In addition, in Southern-Africa rural-urban migration is necessary from an economic perspective to relieve the rural areas of the current over population and to increase the productivity of these areas. It can thus be said that urbanisation on a large scale is not only acceptable but is urgently required (Thompson and Coetzee, 1987 and Urban Foundation, 1990c).

To conclude then, whereas policy makers had in the past often viewed urbanisation as a burden on the economy, it is now considered an opportunity for further economic growth (Finansies en Tegniek, 20 Mei 1988). A higher level of urbanisation in SA is indeed a necessary condition for development, but development also requires that living conditions for the poor in the urban areas improve and that their income earning opportunities expand.

2.5 SUMMARY AND CONCLUSIONS

The situational analysis contained in paragraph 2.2 leaves little doubt that the black urban population of South Africa is destined to grow dramatically over the next number of years. Projections show that, even allowing for an undercount in official population statistics, the number of urban dwellers can be expected to increase about two and a half times between 1980 and the year 2000. Based on the official statistics, the increase from the 1980 figure of 6,8 million is expected to be in the order of 3,7 times to reach approximately 25 million by the year 2000. It is expected that the black urbanisation rate will then have reached 75% . This implies that over a period of 20 years as many people will need to be accommodated in South Africa's urban areas as has been over the past 100 years.

A comparison between the urbanisation levels in the SATBVC states and that of other countries at a similar level of economic development, and a comparison between the SATBVC states and the developed countries of the world, clearly underlines the potential for urbanisation in Southern Africa and also stresses the need for further urbanisation as a prerequisite for further economic development.

Unemployment amongst those urbanised varies widely from one region to another and depends largely on the state of the economic activity (refer to paragraph 2.3.1). Estimates of unemployment vary between 14% and 30%, depending on the specific region and the definition of unemployment. What is even more significant, however, is the imbalance between expected population growth and the demand for labour in the long run. Inappropriate technologies are cited as one of the causes. Projections show a significant increase in unemployment amongst both skilled as well as unskilled labour, however it is interesting to note that unemployment amongst skilled workers can be expected to rise much faster than that of unskilled labourers.

Poverty in South Africa is rife. It has been estimated that about 50% of the population lives below the minimum subsistence level (MSL) (refer to paragraph 2.3.2). Conditions in the TBVC and self-governing states are even worse as it is estimated that 81% percent of the population lives below the MSL. In certain urban areas poverty may be less wide spread, but in other urban areas the above figures present a true picture. Considering the expected accelerated urbanisation rate and the expected increase in unemployment, it can be expected that poverty amongst urban blacks will further increase in future.

Government's historic urbanisation and housing policies have been replaced by a new positive strategy towards urban development. This has underlined the huge backlog in housing which is currently estimated at 800 000 and which is increasing daily. The financial realities of the black community at large is such that the majority will not be able to afford a formal house. It is estimated that on average only 10% of the blacks can afford a house worth more than R35 000, 33% can afford a home of between R15 000 and R35 000, 38% can afford a house costing between R3 500 and R15 000, and the rest (19%) can only afford shelter of less than R3 500 (refer to paragraph 2.3.3).

Although huge pieces of land have in the recent past been earmarked for black urban development, much additional land will be required to meet the expected demand up to the year 2000.

Up to now the emphasis by government and non-government organizations alike has been on the provision of housing for the underprivileged. The provision of social infrastructure such as schools, recreational areas, health, cultural and religious facilities etc, has so far been neglected, as has the creation of legitimate local authorities with effective departments such as engineering and finance. The backlog in the provision of these facilities is completely underestimated and is even greater than for housing (refer to paragraph 2.3.4).

Development means different things to different people. One of the definitions of development describes development as a combination of economic growth, employment creation, a more equal distribution of economic activity and a provision of the basic needs of people. However defined, social factors must always be considered jointly with economic factors and economic development.

The urbanisation drive must be viewed against South Africa's macro-economic background. An analysis of the economic environment clearly indicates that South Africa's economy is not likely to perform well for the foreseeable future and that the country as a whole cannot nearly afford to undertake the provision of urban infrastructure on the scale required if capital intensive methods are utilized (refer to paragraph 2.4.3). This requires a special effort by all concerned with the use of resources to ensure that our resources are utilized optimally. To attain maximum economic growth the concept of inward industrialisation must be explored. This in turn implies the expansion of industries of all sizes to supply the demand of goods with a low import content for the masses while, at the same time creating as many employment opportunities as possible.

Whereas Black urbanisation had in the past been viewed as a burden on the economy, it is now recognised an opportunity for further economic growth (refer to paragraph 2.4.4). Economists have proved that cities are economically more productive than rural areas and that the economies of urbanisation increase with city size. In addition, our cities are still small in terms of world standards. A higher level of urbanisation is thus not only acceptable, but is indeed a necessary condition for our further economic development and as such provides a challenge for the future.

The socio-economic environment described in this chapter, together with the current political reform process and the concomitant empowerment of the masses, dictate the need for a different approach to development projects (Bra , 1988).

Such an approach entails a shift away from first world type projects to projects that are undertaken with due consideration of the realities of the situation.

A thorough understanding of the broadening issues covered in this chapter are therefore indispensible for the project manager involved in urban development seeking to structure his projects in an optimal manner. The issues covered in this chapter are also important background information for the premises in the rest of this report.

While this chapter provides an overview of certain relevant factors pertaining to black urbanisation, chapter 3 gives insight as to how development organisations actually address the need for development in the urban sphere.

CHAPTER 3

CURRENT APPROACHES TO URBAN DEVELOPMENT

3.1 INTRODUCTION

"An enormous amount of development effort is taking place in South Africa, possibly unsurpassed anywhere else in the world. The number of development agencies is to be counted in the hundreds, available funds in the thousands of millions of rand and development projects in the thousands" (van der Kooy, 1988).

It thus comes as no surprise to find the South African black urban development scene marked by a proliferation of organisations that often appear to be acting in an unco-ordinated manner. In addition, these organisations often have different approaches to development, even to the extent that they have opposing views. Some organisations concentrate on specific elements of the urban fabric, while others are involved in the total urbanisation process.

The environment within which many civil engineers now find themselves has not just changed from a socio-economic-political point of view (refer to chapter 2), but also from the point of view of who is his client. Up to recently the nature of most civil engineering work (and thus the environment within which the civil engineer worked) was that of the first world. The reason for this being that 60% to 70% of all civil engineering work came from the public sector, which generally has a first world approach to projects (Viljoen, 1990 and Viljoen, 1986).

Recently new clients have emerged, especially in the field of urban development. Their approach to proj[illegible]nd their often relative inexperience, require that civi[illegible]rs must take cognisance of the often diverse app[illegible] of the different client organisations. This chapter contains a brief overview of the approaches, viewpoints and policies of some of the major organisations involved. Not all organisations are covered, since there are too many. Certain of the organisations that are covered, such as the Gencor Development Trust and Planact, have very limited impact on the urban development scene. Their approach to projects is nevertheless covered for interest's sake.

The viewpoints expressed in this chapter are a combination of the official policies and approaches of the various organisations as well as the author's observations.

3.2 ROLES, OBJECTIVES, POLICIES AND APPROACHES OF THE MAJOR ACTORS

3.2.1 Central Government

The State President requested the President's Council to advise him on strategies by means of which the urbanisation process could be ordered. At the end of 1985 the President's Council submitted its report on urbanisation for the RSA, to the government. The White Paper on Urbanisation (June 1986) was subsequently released and puts forward the central government's urbanisation policy.

The general policy framework for urbanisation, as set out in the White Paper, is briefly as follows:

- urbanisation in the metropolitan as well as the non-metropolitan areas is accepted as inevitable, and should be utilised in a positive manner

- in future freedom of movement to and within the urban areas will apply to all South African citizens

- the existing measures with regard to separate living areas for the various population groups in towns and cities will still be observed

- the timely identification for sufficient land is seen as an essential prerequisite for the planned management of urbanisation

- it will still be sometimes necessary for individuals and groups to move

- a more balanced distribution of people and economic activity must be promoted

- a regionally differentiated approach should be followed in the planning and management of urbanisation

- the principle that consumers should pay for services and facilities is confirmed

- standards and regulations for housing, physical infrastructure and social services should in general be adapted. Standards that are too high and that cannot be afforded should be adjusted

- local government institutions should be established for all communities, and the maximum devolution of authority and responsibility should be promoted.

The approach of the various Provincial Administrations to urban development is not separately covered in this section as their approach as the second tier government, generally reflects that of central government.

3.2.2 Local Authorities

Although black local authorities are not a homogeneous group of organisations, judging from experience some general conclusions about the policies and approaches of local authorities towards urban development projects can be made:

- because of the backlog in housing, urban development projects in the black urban areas have a high profile amongst local authority staff and councillors alike

- councillors sometimes misuse projects for political and personal financial gain and projects are often highly politicised

- local authorities, especially councillors are generally ignorant about aspects such as the manner in which projects should be approached. They have seldom had much exposure to such aspects as appointment of consultants, tendering procedures and the drafting of agreements with developers. They are thus often exploited by people who enter into one sided contracts with councils

- councillors often make totally unrealistic election promises, which they invariably endeavour to fulfill. They therefore often make unrealistic demands about such matters as financial assistance, standards of services and time frameworks for projects

- they often have high aspirations about issues such as housing standards, even to the extent that low income housing projects are prohibited by councils

- they are often unaware of the extent of planning that precedes projects and of the managerial, financial and maintenance implications of projects

- on the other hand are councillors and local authority personnel often positive and eager to learn and receptive to sound development and business principles, once a good rapport has been established with professionals and others who take their interest at hart.

Black local authorities have recently been increasingly criticised by certain groups within the black community, and pressure for their abolishment is increasing. At the same time civic organisations are becoming increasingly influential and are often regarded as the de facto representatives of the people.

3.2.3 Local Authority Loan Fund

The Local Authority Loan Fund is a central fund, administered by the Department of Finance, that provides the smaller local authorities with access to finance at market related interest rates. The only qualifying condition is that local authorities should be creditworthy.

3.2.4 Regional Services Councils

Regional Services Councils, established in accordance with the Regional Services Councils Act 109 of 1985, are relatively young organisations. The primary objective of the RSC's are the provision of services on a regional basis. The appendix to the Act identifies 22 possible regional functions of RSC's, such as the bulk supply of engineering services and the provision of certain social services eg libraries, recreation areas, tourism etc. The Administrator of a Province, after consultation with all parties concerned, identifies which functions or parts of functions will be executed by a particular Regional Services Council (Regional Services Councils Act, 1985).

Because of the great backlog in the supply of infrastructure in the developing urban areas, RSC's are currently mainly involved in the participating local authorities with the provision of bulk infrastructure and with upgrading projects. It has been found in practise that the approaches of the various RSC's differ widely, however their current role is mainly aimed at physical engineering projects. This may change in future to include a wider involvement in the urban development process.

3.2.5 National Housing Commission

The National Housing Commission uses Central Government funds and provides subsidised loans to local authorities for residential infrastructure development and for the construction of houses for the low income groups. Maximum expenditure on house and stand is determined on a project basis but normally does not exceed R11 000. Interest rates fluctuate according to the income of the individual. At the lowest end of the scale home-owners are heavily subsidised. The funds provided are rolled over into bond financing for home owners. NHC funds are administrated by the four Provincial Administrations and policy may therefore differ slightly from one area to another. As funds come from Central Government, the demand for NHC funds far exceed availability.

The NHC thus focuses exclusively on the provision of infrastructure and housing. Developmental aspects other than the physical, are not considered.

3.2.6 South African Housing Trust

The South African Housing Trust (SAHT) was established in November 1986 with an interest free loan of R400 million from the South African Government. Additional funds are obtained on the open money market. The SAHT provides bond finance directly to individual home owners through its building society arm Khayalethu Home Loans. The interest rate is 13%. The SAHT also undertakes the servicing of the land in addition to the construction of houses, the total package not exceeding R22 000. Their method of work is such that they involve the local authorities in their projects (SAHT Annual Report, 1988). An analysis of the standard co-operation agreement between the SAHT and local authorities, show that local authorities are in partnership with the SAHT for any development that the SAHT undertakes. The SAHT therefore exposes a local authority to the risks inherent in housing development projects, although the SAHT management denies that they will ever make use of this avenue.

In addition to undertaking projects for the construction of residential infrastructure and houses and the provision of bonds to home owners, the Trust endeavours to create new job opportunities with the focus on the permanency of such job opportunities (SAHT Annual Report, 1988). Small entrepreneurs are furthermore actively encouraged and assisted, through the Trust's projects, to establish themselves as housing contractors in their own communities.

Due to the market for which they cater, the SAHT places considerable emphasis on the utilisation of appropriate technology and low standards in residential infrastructure.

3.2.7 Development Bank of Southern Africa

The DBSA sees its primary function as to become involved in the provision of bulk and connector infrastructure which facilitates urban development and which is required for a town's economic base. Occasionally the Bank will provide finance for residential infrastructure, but only if other sources of finance cannot be found. The Bank will also provide assistance for the other elements of the urban environment, such as the strengthening of local authorities, upgrading projects, business development programmes, long term planning for economic development, social, security, recreational facilities etc, but only if these form part of the urban fabric. In short, the DBSA approaches urban development in a holistic manner and believes that all elements of urban development should be given equal weight.

The DBSA usually provides finance at subsidised interest rates (normally 10%), altough loans for investigations and planning purposes are sometimes provided at lower interest rates.

To facilitate the Bank's role, a number of guidelines are used in the evaluation of urban development projects (Headway, February 1987):

- urban development should only take place if there is a viable economic base
- as much use as possible should be made of the private sector
- subsidisation should be phased out as soon as possible
- any urban development should be acceptable to the local community

- appropriate local authorities and other bodies to administer and manage a town must be developed

- the effective demand for services and housing according to what people can pay, and not subjective needs, should be addressed

- deregulation should take place where appropriate

- the informal and small business sectors should be stimulated

- labour-intensive construction techniques should be used as much as possible

- available infrastructure and facilities should be used as much as possible

It is thus clear from the above that the DBSA approaches urban development from a holistic point of view and that they endeavour to allocate an aqual weight to economical, technical, urban financial and urban managerial matters.

3.2.8 Urban Foundation

The Urban Foundation has up to now largely concentrated its efforts on the provision of houses (Urban Foundation Annual Report, 1988). Their aim is to make a significant impact on the low cost segment of the housing market for blacks in especially the urban areas. They regard the provision of shelter as a key factor in the socio-economic development of communities.

In addition, the Foundation also focuses on policy matters. They have been instrumental for a number of the government's policy changes on urbanisation and are, according to their annual report, continuously researching aspects such as economic development, new approaches to urban management, issues related to education, the provision of creches and other social infrastructure.

The Foundation's department of residential development and construction has as objective the provision of housing at the lowest prices possible and has through its seven subsidiary companies, provided housing to 9500 families during the 1988 financial year. They also provide in the need for self-help housing projects and aims at the creation of jobs and the encouragement of emerging entrepreneurs. The subsidiary companies are geographically decentralised throughout South Africa and operate as companies not for gain in accordance with section 21 of the companies act.

The name of the Foundation's subsidiary company in the Orange Free State is Blomanda Housing Company. In the author's experience with the development of two large towns in the OFS, Blomanda has up to now adopted the approach of a normal private sector housing company. In these two areas they are not as yet addressing the lower end of the housing market, neither are they focussing on much more than physical residential and housing development. It must be conceded, however, that the reasons for not being able to address the lower end of the market may be partly attributed to factors outside their control (refer to paragraph 4.3).

The case study in the next chapter concerns a project currently undertaken by Blomanda, one of the seven subsidiary companies, and it is thus considered appropriate to have a brief look at that company's goals and objectives as stated in an introductory letter (Duys, 1989).

Blomanda's goal is to provide urban communities with access to housing which they can afford. As a company not for gain, any excess returns are re-invested in Blomanda's projects. The business goal is developing serviced residential land and homes for lower and middle income communities.

Services currently provided by Blomanda include:

- the conversion of undeveloped land into serviced and proclaimed residential townships where privately owned houses can be built. Serviced stands are sold directly to families or to home builders. Residential stands are serviced by Blomanda to a variety of different levels

- assistance to low income families in the procurement of their own homes

- assistance to families by trained Blomanda staff in identifying their accommodation needs, and how they should go about obtaining a home

- the construction of houses by informal contractors or sub-contractors on a labour only basis, or by independant contractors

- the supply of materials to owner-builders from Blomanda's on site store

- the rendering of technical advice by their building inspectors

- the arrangement of building society home loans or loans from other institutions

3.2.9 Private Developers

Private developers are in the field of urban development in order to generate profit. Because of the milieu in which urban development projects are undertaken, there has in the past been ample opportunities for exploitation and unethical behaviour.

Up to this point in time private developers have almost exclusively concentrated on the provision of residential services and housing for the high income groups. This market has now, however, almost been totally exploited. Developers will therefore soon be forced to address the lower segments of the market.

3.2.10 Gencor Development Trust

All the major mining houses have funds or trusts created for the purpose of funding projects that they consider appropriate. The Gencor development trust consists of three funds, viz the chairman's fund, the welfare fund and the educational fund (Visagie, 1988). The former fund is utilised on an ad hoc basis for projects that are considered to be in the company's long or short term interest, for instance to boost the company's standing among a certain community. The welfare fund is used for environmental, cultural and family planning projects. The educational fund is utilised for various educational projects such as the construction of schools, teacher training projects etc.

Generally speaking, projects are approached in a typical mining fashion, for instance where projects are identified, the planning and design is undertaken by head office personnel in a rather first world manner. The emphasis during the design and construction phases is generally on speed. Issues such as job creation and optimisation of broader social development are not considered. On the other hand, however, during the identification of projects, emphasis is placed on community participation.

In summary, it can be said that the trust can be considered as the social conscience of a successful business company. The trust can be regarded as a charity fund rather than a development fund. The approach is one of hand-outs rather than one of a long term investment in human development.

3.2.11 Planact

Planact is a team of professional engineers, architects, social scientists and planners who are concerned with alternative approaches to development. Planact is, amongst other projects, involved in projects in the developing urban areas. The principles below outline their approach in a Langa upgrading project (Abbott and Swilling, 1986).

According to Planact their approach differ from convential planning tactics in a number of different ways. They firstly aim to set in motion a process of physical and social improvement in the area where they are undertaking a project. They secondly believe that upgrading should involve a careful phasing of service improvement. Thirdly, projects are planned to take place in a way which are in accordance with the needs and desires of the community. Fourthly, great emphasis is placed on community building and democratic decision-making structures are actively encouraged to form, if they do not already exist. Planact fifthly believes that economic benefit derived from investment in services must as far as possible be retained in the community.

During an interview with a member of Planact (Abbott, 1988), it became apparent that this person places considerable emphasis on community development in the projects that he is invloved in. It must be stated however that he was at the time mainly involved in water supply projects for the rural areas. Mr Abott regarded projects merely as a means to an end, namely an improvement in the community's self-esteem and self-confidence. He is of the opinion that communities can in fact make decisions for the benefit of the community at large. What was apparent however, is that this process of intensive interaction with the community is extremely time consuming. For instance, it was mentioned that it has taken up to 12 months to negotiate the installation of a single hand pump.

3.2.12 World Bank

The World Bank is generally considered the world's leading development institution and is active in urban development projects world wide. Although the Bank is not represented in South Africa, it is nevertheless interesting to take a brief look at those aspects that they regard as important for urban development.

The sections that follow are not necessarily the official policy of the World Bank, but rather focus on some urban development considerations and issues as expressed in The Urban Edge, a publication of the Bank. This provides some insight into those aspects that the Bank regards as important.

During a conference on urban development in Washington D.C. during December 1985 (The Urban Edge, February 1986), the World Bank President A.W. Clausen argued that the issue of managing urban growth and ensuring productivity of the urban economy should be recognised as a global issue that will be crucial to our (the world's) economic future.

At the same conference it was stated that urban professionals should be talking about the process of managing urban growth, and not about the business of managing some projects. "We are talking about relating urban management to economic development, about the process that a city performs better. Although urban projects must continue, their focus must be wider. The focus should not be on one or two projects, we want the city to be addressed. This does not mean that projects should be given up entirely, but rather that projects should be used as vehicles. Urbanisation is a process, and their is no way one can deal with it exclusively on a project basis, but if one uses the project as a vehicle, then one can address the process questions."

Ping-Cheung Loh, director of the World Bank's water supply and urban development department considers the link between urban development and national economic development as of prime importance (The Urban Edge, January 1987). Loh argues that it must be shown that each new investment has greater benefits than costs and is a better option than other possible uses of the same resources in any sector. Such an approach requires new thinking about the connections between urban development and national economic growth.

Loh furthermore places considerable emphasis on the strengthening of the institutions that are responsible for municipal finance and management. He states that the efficiency and productivity of an urban area depends, in part, on infrastructure and services that are adequate, well maintained, and reasonably priced. Investments must be made in such areas as staff training, better handling of local finances and improved operations and maintenance.

The Urban Edge (April 1987) reiterates the importance of municipal development in stating: "From the perspective of World Bank staff, experience gained in the 1970's and 1980's pointed to the need to look beyond specific housing sites to a city's ability to operate and manage investments. The management and financial position of the municipality became the central focus in the design of projects. New attention was directed toward the way municipalities handle expenditures, the day to day payments associated with the ongoing city operations."

The World Bank is also concerned with all other aspects of the urban fabric and concerns themselves with isues such as appropriate technology and standards, housing strategies, waste management, training and human resources, etc. In short, the Bank approaches urban development from a holistic point of view.

The Development Bank of Southern Africa has been modelled on the World Bank and there is thus considerable similarity in the approach of these two organisations to urban development and urban development projects.

3.3 CONCLUSIONS

From the above brief analysis it is clear that the approach of the various organisations involved in the urban development process, and in urban development projects is extremely diverse. While some organisations focus on specific aspects of urban development, others approach urban development in a holistic manner.

In practice the diverse approaches of the various organisations often lead to conflict. For instance, the difference in interest rates charged by the NHC and the SAHT sometimes means that people in identical houses on opposite sides of a street, have bond repayments that differ substantially, while both repayments are directly, or indirectly subsidised by government. The same applies to the financing of bulk services, the DBSA, NHC, LALF and occassionally even the SAHT, are all organisations that finance bulk services. However, their interest rates as well as their approach to the same project will differ substantially. This leads to considerable confusion amongst borrowers. Whereas an organisation such as the NHC would generally consider technical matters as project related, and at times political issues, an organisation such as the LALF only considers the credit worthiness of a local authority in the evaluation of applications for financial assistance. The DBSA would on the other hand take a holistic viewpoint of the application.

The World Bank's approach and focus on urban development is interesting, and contains valuable lessons for South Africa. It is interesting to note that their current approach places considerable emphasis on the economic productivity of urban areas and on the improvement i. urban managerial and financial matters. In this context their approach is to regard projects as vehicles for development rather than for the sake of the projects alone.

Civil engineers must take cognisance of the diverse approaches and objectives that different clients may have. This aspect will become even more important in future as non-traditional client organisations such as civic organisations and foreign aid organisations start playing a bigger and more important role in urban development.

The next two chapters contain case studies highlighting problems actually encountered by development organisations in the implementation of projects. Chapter 4 contains a case study in which the Urban Foundation and the DBSA had been involved. The DBSA was also the funding organisation for the case study in chapter 5.

CHAPTER 4

THE DEVELOPMENT OF MANGAUNG

4.1 INTRODUCTION

This chapter contains a case study regarding an urban development project in the Orange Free State, in which the author was involved from October 1987 up to July 1990 as project leader and consultant to the DBSA. It concerns the development of Mangaung, the black residential area adjacent to Bloemfontein.

4.2 BACKGROUND

The municipal area of Mangaung abuts the south-eastern boundary of Bloemfontein municipality. In contrast to most black townships in South Africa that are situated a considerable distance away from the CBD of neighbouring white towns, the northern end of Mangaung is located close to Bloemfontein CBD. Mangaung thus forms an integral part of the Bloemfontein urban complex. Mangaung's sizable population is largely dependent on the economy of Bloemfontein for employment opportunities and Mangaung can thus be looked upon as a dormitory town (Botha, 1987).

Mangaung has been in existence since 1861 and is the largest and closest residential area for black people who work in Bloemfontein and vicinity. Botshabelo is located approximately 50 kilometers to the east of Bloemfontein. However, many people employed in Bloemfontein have had to move to Botshabelo due to the shortage of housing in Mangaung. During 1988 it was estimated that there was an immediate effective demand (people earning more than R250 per month) in Mangaung for 12 000 residential units and that the projected demand up to the year

2000 was 16 400 units. In addition, there was a demand for shelter from those earning less than R250 per month who would not be able to own a dwelling of their own (Urban-Econ, 1988).

Mangaung had a population of approximately 130 000 (1988 figures) which was expected to rise to 180 000 by the year 2000. The population was accommodated in 16 700 houses while a further 3 300 dwellings were developed during 1989. Once completed, the existing municipal area would be fully built up. Mangaung was surrounded by areas earmarked for other development and could therefore only expand to the south (Botha, 1987).

Mangaung gained independent municipal status on 1 January 1984 in terms of the provisions of the Black Local Authorities Act, No 102 of 1982. Shortly thereafter the City Council decided to take out options on the two abutting farms Turflaagte and Liege Valley (786 ha in extent) which constituted the only land available for future development. The Council contemplated extending their municipal area and developing the two farms on their own. However, due to a lack of finance, the Council could not exercise its options and the options lapsed.

To the great dismay of the Mangaung City Council, Blomanda Housing Company then purchased the two farms. Blomanda, a subsidiary company of the Urban Foundation, was situated in Bloemfontein from where it served the Orange Free State (refer to paragraph 3.2.8 for more information on their background and objectives).

4.3 THE ORIGINAL APPROACH TO THE DEVELOPMENT

During October 1987 Blomanda approached the Development Bank of Southern Africa for financial assistance for the construction of bulk services to the new areas. The author, acting as project leader on behalf of the DBSA, became involved in the project at that stage and was associated with the project until July 1990.

During 1987 Blomanda appointed an experienced team of consultants for the project. Two firms of town planners were appointed, the one a local company while the other a firm based in Cape Town. The latter firm had also been town planner for the Kayalitsha development, which was considered to be a model for low cost residential development. The Bloemfontein firm was represented by a professor from the local university. In addition to town planners, civil and electrical engineers were appointed.

By June 1987 a structure plan for the development of the area had already been drafted (Botha, 1987). A structure plan is a framework within which detail planning can be carried out. The structure plan under consideration dealt with physical attributes of the site such as climate, geology, soil conditions, topography, hydrology, and vegetation. The availability of bulk engineering services was also comprehensively addressed and so were legal aspects such as ownership, servitudes and mineral rights. The plan also contained an investigation into demographic tendencies, while economic criteria were also touched on. The planning document culminated in recommendations on stand sizes, land use, affordability levels, phasing and engineering standards such as road widths. The structure plan was subsequently supplemented by further detailed investigations into alternatives for the supply of services.

By the first half of 1988, planning had progressed to the point where the town planning and basic engineering design for the first four phases of the envisaged residential development, had been completed. Considerable effort had been devoted to the finer details of the township layout. For instance, new concepts were devised for cutting down on the size of land required for schools. Proposals for combining homes and shops in double storey buildings where persons could live on the first floor and conduct their businesses from the ground floor were devised as a method of stimulating the informal sector. A further example of good planning was neighbourhood units where people would be able to utilise streets for social interaction without the interference of through traffic, except emergency vehicles.

All in all, the town planning and engineering aspects were excellently addressed and considerable attention was devoted to detail. Technical planning meetings were held on a monthly basis. The objective was to go out to tender during October 1988 for the construction of services for the first two residential areas.

In addition, Blomanda had planned for the management of the project and issues such as the organisation for the design and construction of houses and project related cash flow planning had been completed. They had also conducted further feasibility and affordability studies. Generally they were happy that there was a huge demand for accommodation and that the project was feasible.

The area was declared a section 33 area during March 1988, which meant that the area was now legally earmarked for township development for blacks.

One problem arose however; the Mangaung City Council refused to have anything to do with the development, as they could not accept that Blomanda should be the developers of land which they claimed to have the right to develop. The Council therefore refused incorporation into their municipal area and refused to supply bulk services to the area. A deadlock resulted and all communication with the Council broke down. Blomanda then approached the OFS Provincial Administration with the request that permission be granted to develop the area as a new town under a separate local authority and that an administrator be appointed to undertake the management of the area. This request was conceded to and when such a person was appointed during the latter half of 1988, everybody concerned was optimistic that all outstanding issues had been resolved and that development would be able to proceed without any further major problems. It was decided to call the new local authority Meriting. A letterhead with this name was designed and printed.

During an appraisal of the development project by the author it became apparent that the following critical issues had, inter alia, been overlooked:

- The socio-economic development of the town and its peoples and specifically ways and means by which physical development projects could be used to enhance and support socio-economic development.

- The extent of the organisation required for performing local authority functions was completely underestimated.

- The legal requirements for establishing a local authority under the above conditions, were complicated and involved much more than what was originally anticipated. The fact that the local authority would be almost totally privatised further complicated the matter.

- The financial implications of establishing a new local authority were far-reaching and had not been adequately considered. For instance, the legal responsibility for the taking up and guaranteeing of loans for bulk services, were issues for which no immediate solution could be found. Representation by the new local authority on the Regional Services Council and the obtaining of funds from this source could, due to legalities, not be resolved.

- The implications of a negative cash flow and the responsibility for providing bridging finance during the initial years of operation, had not been planned for.

- The future relationship with the neighbouring authority was not considered; neither were the implications of having two local authorities adjacent to each other, with the one having much higher rates and tariffs than the other.

When the Provincial authorities realised what the implications of a new local authority were, they changed direction. When Blomanda submitted their township application for the first residential area, the authorities stipulated, as part of the conditions of establishment, that an agreement had to be reached with the Mangaung Council regarding incorporation into their municipal area. This once again created a deadlock.

Luckily for Blomanda, October 1988 saw the election of a completely new Council who were more positively inclined to co-operation and to the incorporation of Meriting into their area of jurisdiction.

4.4 THE REVISED APPROACH TO THE DEVELOPMENT

It was then agreed (October 1989) that Mangaung and Meriting should in fact be one entity and the use of the latter name was dropped. A steering committee was formed to co-ordinate the further planning. In order to involve the Council in the planning, it was decided that the town clerk should chair the meeting and the Council was requested to send two representatives to all steering committee meetings.

In addition to technical matters, the approach then followed was to plan for the overall balanced development of Mangaung and Meriting as a single complex. Urban managerial matters, with specific reference to the impact of the extensions on the managerial capacity of the Council were considered. The impact of the envisaged development on Mangaung's financial position was also assessed. These aspects are discussed below.

4.4.1 Planning for Balanced Urban Development

In addition to the planning for the physical extensions to Mangaung, the need for long term socio-economic planning had been identified. This was necessary in order to ensure the creation of a balanced urban environment. In order to facilitate this, it was decided to undertake the compilation of an urban development plan (refer to chapter 6 for a detailed discussion). This involved an overall assessment of the socio-economic and physical conditions in Mangaung, the identification of the weaknesses and opportunities for development, and the drafting of a strategy for the long term economic development of Mangaung. It also included the undertaking of additional projects that had not as yet been identified. Such projects could either be projects for physical development such as the upgrading of the old areas in Mangaung, or projects related to the socio-economic development of Mangaung such as a support programme for the informal sector and an investigation into the implications of Mangaung's economic dependance on Bloemfontein. Consideration was given to the full spectrum of urban services and facilities that should comprise an urban environment. This approach was applied to both the old areas of Mangaung, as well as in the new developments. Without such a plan, the possibility existed that certain facilities and services would be over-provided and others under-provided, the result being an unbalanced urban environment.

At the time of writing, the overall assessment of Mangaung had not begun and can thus not be further commented upon. The approach was, however, similar to the concept of the urban development plan described in chapter 6.

4.4.2 Urban Managerial and Financial Planning

It was soon realised that extensions to Mangaung, of the magnitude contemplated, had significant implications for the management of the city as well as for the city's financial position and cash flow. Consultants were therefore invited to submit proposals for an assessment of the following:

- the existing managerial situation

- the required managerial changes to accommodate the new expansions

- the existing financial position and tariff structures

- the impact of the new developments on the financial position of the Council and projections of the future expected impact.

The major conclusions from this investigation were (Zybrands, 1989):

- there was very little depth of experience in the Council. Due to the exigencies of the work, the top management structure found very little time to develop the potential of the junior staff

- the departmental heads were so busy coping with functional work that they had little time to institute proper control procedures

- the council was not in a healthy financial position and was, according to the external auditors, technically insolvent as it depended on bridging finance from the Provincial Administration to make up its deficit

- the outstanding debtors account was constantly increasing and amounted to R3,8 million at the end of the 1988 financial year

- the Council was caught in a web of financial restraints which would be extremely difficult, if not impossible, to escape from. The accumulating interest redemption burden was going to have a profound effect on future budgets

- there was very little evidence of any sound financial management information system

- services were generally rendered below cost. For instance, electricity was sold at 5,5c per kWh whereas a realistic tariff for Mangaung had been calculated at 10,5c per kWh. The same applied to water where the corresponding tariffs were 51c and 75c.

From the above, it was evident that Mangaung Town Council was not in a position to manage the city effectively, even at that early state of development. Without a significant increase to its managerial capacity, they would not nearly be in a position to undertake the management and maintenance of the planned extensions. Mangaung also did not have the managerial capacity for undertaking management functions for the planned projects. In the event of any one of their key personnel leaving, the situation would deteriorate rapidly.

Any increase in the quantity of services to be rendered by the Council would result in a worsening of their financial position. The planned extensions therefore had serious repercussions for the long term financial position of the Council. Without a significant upward adjustment in rates and tariffs the bridging finance provided by the Provincal Administration would have had to be increased considerably. Without a significant improvement in its financial position, the Council was also unlikely to attract loans from the private sector.

At the time of writing alternative strategies for addressing the above problems were being considered. No clear-cut solutions existed. However, it was evident that the planned extensions could not be undertaken without due consideration to an improvement in both the managerial capacity and the financial position of the Council.

The ideal would have been to address these aspects prior to continuing with physical development projects. However due to the pressure of urbanisation, these issues would have to be addressed in parallel with the planning and construction of the new residential areas.

4.5 CONCLUSIONS

The following conclusions can be reached from this case study:

- project managers involved in the management of urban development projects in South Africa, and who are concerned with the overall long term success of their projects, cannot limit their involvement to technical town planning and engineering aspects alone

- what we are concerned with in urban development projects such as these, is the creation of cities. Cities are complex entities and planning for their development require a holistic and balanced approach to all elements of the urban fabric

- such a development planning process requires the input from several disciplines, and it is thus up to the team leader (or project manager) to co-ordinate and direct members of the team. As this represents a new approach to urban development planning, no discipline is specifically qualified for this role

- engineers must take account of political factors, and must consider the political feasibility of their projects. It must be expected that projects will be drawn into the political arena, even though identical projects would previously have been regarded as a purely technical matter

- community participation forms an integral and most important part of urban development projects. The wishes and aspirations of the people must be taken into consideration and must form an integral part of the planning process

- in addition to socio-economic-political aspects the engineer also has to attend to local authority managerial and financial matters. The adverse impact of large development projects on the financial and managerial position of a local authority could be significant. Project managers need to take due cognisance of this aspect

- the capacity of black local authorities to manage their own affairs and to take meaningful decisions regarding the implementation of development projects is often severely limited. This has serious adverse implications for the successful implementation of development projects

- technical aspects are generally well addressed by the various professional disciplines. In constrast, however, the other elements of urban development require special emphasis as these aspects are often overlooked or not addressed in sufficient detail. Projects are in fact often jeopardised by those very issues that were traditionally considered to be on the periphery of development and outside the scope of the engineer. Taking into account the current high level of technical expertise in our country, there is a much higher risk of money being squandered through the wrong approach than through technological error

- due to the diversity and complexity of the issues to be considered in a project of this nature, it is imperative that special effort should be invested into the initial planning stages of such projects

- because of the nature and the extent of the issues, the planning process in a developing urban environment invariably takes considerably longer than in a developed environment

The above issues can be broadly grouped into development planning matters, urban managerial and financial considerations and technical / project related aspects. Under these headings chapters 6 to 9 explore the problems identified in this case study and the case study in the next chapter, in more detail, and where possible suggest practical approaches for overcoming such issues.

CHAPTER 5

THE DEVELOPMENT OF THABONG

5.1 INTRODUCTION

This chapter contains a case study on the development of Thabong, the black urban area adjacent to Welkom. The author was involved in this project from October 1987 up to the end of 1989 as project leader and consultant to the DBSA.

5.2 BACKGROUND

Thabong is situated adjacent to Welkom in the heart of the Orange Free State goldfields. The area is dominated by the gold mining industry which is by far the largest employer in the area. Anglo American Corporation (AAC) owns most of the goldmines in the region and this company in fact established Thabong many years ago when the first mine was opened in the area. The other major mining company in the region is Gencor and a large number of their employees also reside in Thabong.

Thabong has seen a considerable influx of people since the abolition of influx control. In December 1985 the population of Thabong was estimated at 45 000 people. In June 1987 this figure escalated to 70 000 and the latest estimate (July 1989) is 110 000. Projections indicate that a population of 200 000 can be expected by the year 2000. This high growth in population can mainly be attributed to the large number of mining employees (100 000 for the Anglo group alone) who were accommodated in single-sex hostels on the mines in the region. With the scrapping of influx control many of these people brought their families to live in Thabong, although a great number still choose to live in the hostels.

Old Thabong consists of 5722 main dwellings and together with the new extensions the number of formal houses amounted to approximately 7000 during June 1987. The municipal area at that stage covered an area of 917 hectares.

Anglo had realised at a very early stage that it was imperative for the continued productivity of the mining industry that the housing situation should be normalised. Therefore, immediately following the acceptance of a positive urbanisation policy by the Government in June 1986, AAC scrapped their policy of housing employees in hostels and adopted a new policy which was based on the principle that employees should be given the opportunity to exercise housing choices consistent with their personal desires and financial ability. A suitable home ownership scheme, with subsidised interest rates, was developed and by June 1987 AAC was ready to contribute to the Government's positive urbanisation strategy. Gencor adopted a similar policy soon afterwards.

With Anglo's proactive involvement, Thabong Town Council were convinced that they should purchase five farms with a total area of 1828 hectares immediately to the east of old Thabong. In addition, Blomanda Housing Company also purchased 394 hectares which brought the extentions to Thabong to 2222 hectares, an increase of almost 2,5 times the original area. AAC provided bridging finance to the Town Council to purchase these properties for an amount of R5,1 million.

5.3 THE STATUS DURING NOVEMBER 1987

The author, acting as project leader for the Development Bank of Southern Africa, became involved in the project at the beginning of October 1987 when the Town Council approached the Bank for finance for the construction of bulk civil and electrical engineering services to the new areas.

At that stage a local firm of town planners had already completed the drafting of a structure plan for the whole development. The township layouts for the first residential areas to be developed, had also been completed (but not yet approved) and an application to declare the whole area as a development area (the so-called section 33 approval) had been submitted.

As the capacity of the existing electricity supply to Thabong was considered to be overloaded with approximately 2000 consumers, tenders for the construction of a new 6,1 kilometer 132 kV overhead line, a substation and two 20 MVA 132/11KV transformers, had already been obtained. Calculated at an average demand of 2,5 kVA per stand, this supply was intended to serve 6000 consumers in the new area.

Preliminary designs for the bulk and connector civil engineering services to serve a substantial portion of the new area, had also been completed. The application to the DBSA thus included for the financing of the following bulk and connector services:

electrical services	R 3,3 million
roads	R 7,5 million
stormwater canals and weirs	R 1,1 million
water mains	R 1,6 million
sewer outfall	R 1,5 million
Estimated total cost	R15,0 million

These services had been planned as a first phase to serve the areas that were programmed for development up to the end of 1989.

A development committee to guide planning for the development had been established under the chairmanship of a local director of AAC. All interested bodies such as the OFS Provincial Administration, South African Housing Trust, Thabong Town Council, Gencor, Departments of Health and Education and others, were represented on the committee. Meetings were held monthly.

AAC had, on behalf of the Town Council, approached the South African Housing Trust and a number of private developers who had pledged their support for the development.

In addition to the loan for bulk and connector services, Thabong Town Council also applied to the Development Bank for loans for the upgrading of existing Thabong, as well as for the establishment of a central shopping and business centre.

All in all, it appeared as if Thabong was set on a course for rapid development and DBSA thus approved a loan for R 15 million during November 1987. However, due to administrative difficulties, the loan was only signed during July 1988.

5.4 ENSUING PROBLEMS

What follows are some of the most important problems experienced by Thabong during the course of 1988 and during the first half of 1989. The issues have been grouped under the headings of managerial matters, financial matters, technical and project related issues and the need for long term planning.

5.4.1 Local Authority Managerial Matters

Soon after the signing of the loan agreement, the first payment certificates for the installation of electricity services were processed. It immediately became evident that Thabong had serious difficulties in complying with the simple administrative procedures laid down by the agreement. Although

Thabong had a qualified town treasurer in their employ (albeit part time), simple administrative accounting procedures for keeping track of loan funds paid out against the different votes of the loan agreement, were not being adhered to. In addition, DBSA's standard loan drawdown form (a one page document attached to payment certificates compiled by the consultants), was seldom filled out correctly. After three months of unsuccessfully trying to coach Thabong's officials into following normal but simple accounting procedures, DBSA's project accountants suspended the loan. It was not until a local firm of civil engineering consultants were requested to take over this function, that disbursements were continued.

During the first half of 1988 two of Thabong's departmental managers resigned. The first to leave was the town engineer. He was succeeded by the town electrical engineer (a technician) on a temporary appointment. Next to leave was the town treasurer who was replaced by a retired, ex Welkom treasurer on a part-time basis.

The elections of October 1988 saw the election of a completely new council, except for one remaining councillor who was re-elected. One of the very first actions that the council took was to remove the town clerk from his position. This person, who was the very first black in South Africa to be appointed as town clerk, was accused of mal-administration and corruption. He fought his case to the supreme court, was found not guilty but was told by the Council to leave for the second time, on the very same day that he was reinstated in his post.

The town secretary was appointed as acting town clerk towards the end of 1988. However, the work pressure became too much for him and he resigned during March 1989. He was succeeded by the acting town engineer who then held both positions.

By this time the OFS Provincial Administration was trying to assist Thabong with the daily administrative functions, but due to a lack of staff they were only partly successful. During April 1988 a total of 60 posts, including the senior posts mentioned above, were advertised. However, the qualifications and experience of the applicants were so low that no senior appointments were made.

The nett result of all this was a significant overall deterioration in the managerial and administrative capacity of the council. In the above environment there was little time or capacity for anything but the most urgent and important matters. Proper planning was almost impossible as little feedback or input could be obtained from the officials. The long term effect on aspects such as operation and maintenance of services, were serious. All in all it became evident that a continuation with physical development without a substantial increase in the managerial capacity of the local authority, would be of little long term benefit.

The development committee established by Anglo served as a forum for guiding the development and for providing direction to the consultants involved with the planning. The structure of the committee could however, hardly be described as one that facilitated community participation. Decision making was entirely of a top-down nature, except for occasional inputs that were made by the town clerk and the mayor. The question of how to obtain effective community participation in an urban environment where huge expansion projects have to be undertaken, was unresolved until April 1988 when the concept of working groups was instituted on a trial basis. This concept involved councillors in the decision making process but direct representation by the community was still not achieved. The working group concept is described in more detail in chapter 7.

5.4.2 Local Authority Financial Matters

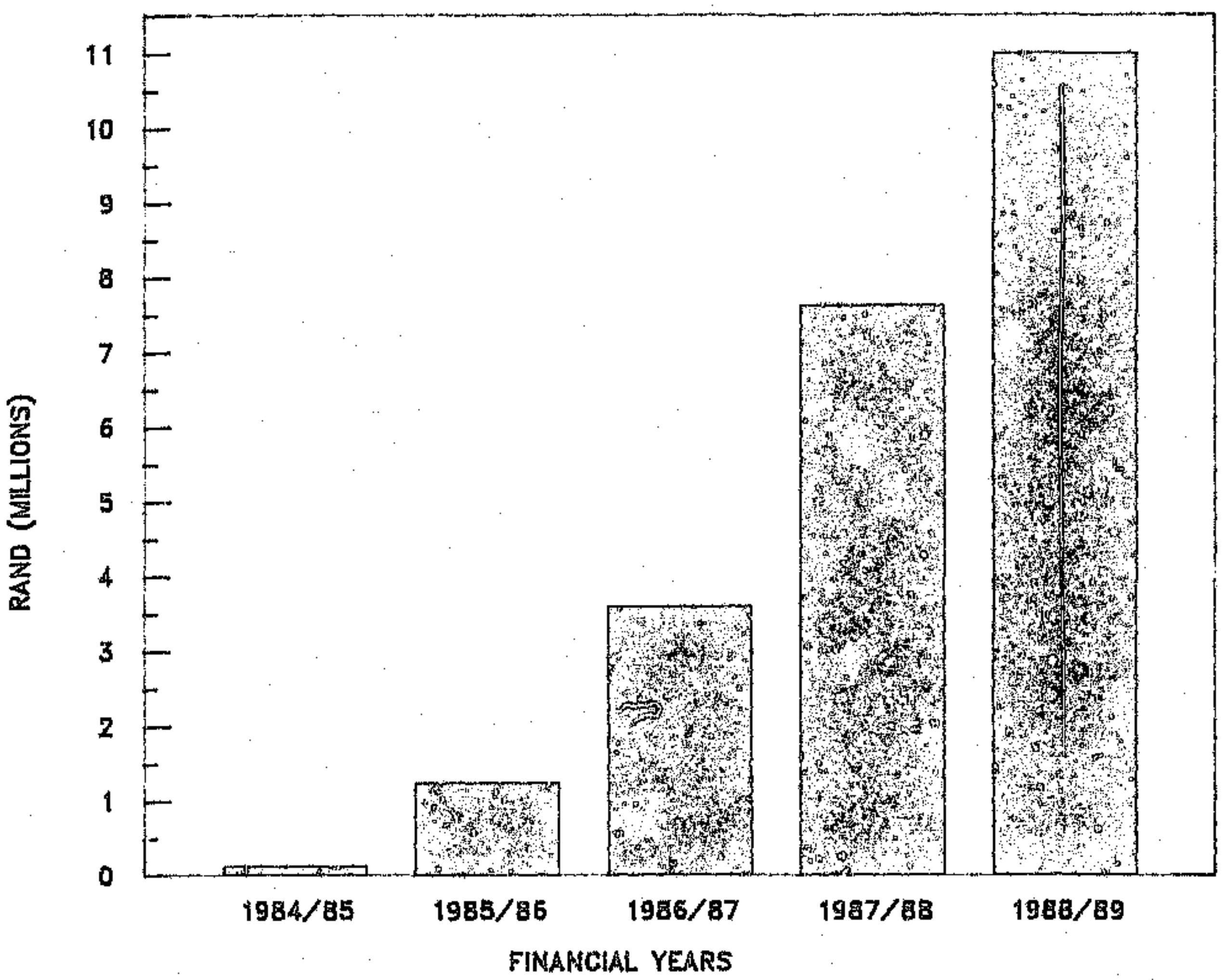
The above deterioration in the managerial and administrative capacity of the council had serious implications for their financial position. For instance, accounts were not rendered on a regular basis. Large employers such as Anglo, who paid most of their employees' accounts, complained bitterly that they wished to pay their accounts, but were unable to do so because they did not receive accounts regularly, and when they did, accounts were often incorrect. Anglo's arrears alone at one stage ran into millions.

Because of the low level of financial management, the rates and taxes charged by the Council were well below cost which implied a continuous deterioration in the Council's overall financial position (refer to figure 3). At the same time the development was continuing, which implied that the financial impact of the development on the Council's already critical financial position was increasing rapidly. Repayments for a number of loans, such as the loan to the DBSA, were scheduled to commence shortly. Without adequate income from rates and taxes, the Council's financial position would then deteriorate even further.

The National Housing Commission held a local authority responsible for the administration of subsidised loans that had been granted to individual home owners in the low income groups (refer to paragraph 3.2.5). Local authorities were responsible for establishing, on a yearly basis, the income of the individual home owners and determining what the individual subsidies and repayments should be. They were also responsible for collecting the monthly payments from the home owners and in turn for transferring these funds to the Commission on a six monthly basis. This was generally a complicated and involved procedure. In Thabong's case the NHC undertook the

FIGURE 3 :

THABONG : CUMULATIVE DEFICIT FROM 1984/85



construction of approximately 750 low cost houses and, at the time of writing the first new owners had already taken occupation, but Thabong had, despite numerous efforts by outsiders, not even identified an individual for undertaking the administrative task outlined above. As one can understand this led to further financial loss to the council.

5.4.3 Technical and Project Related Matters

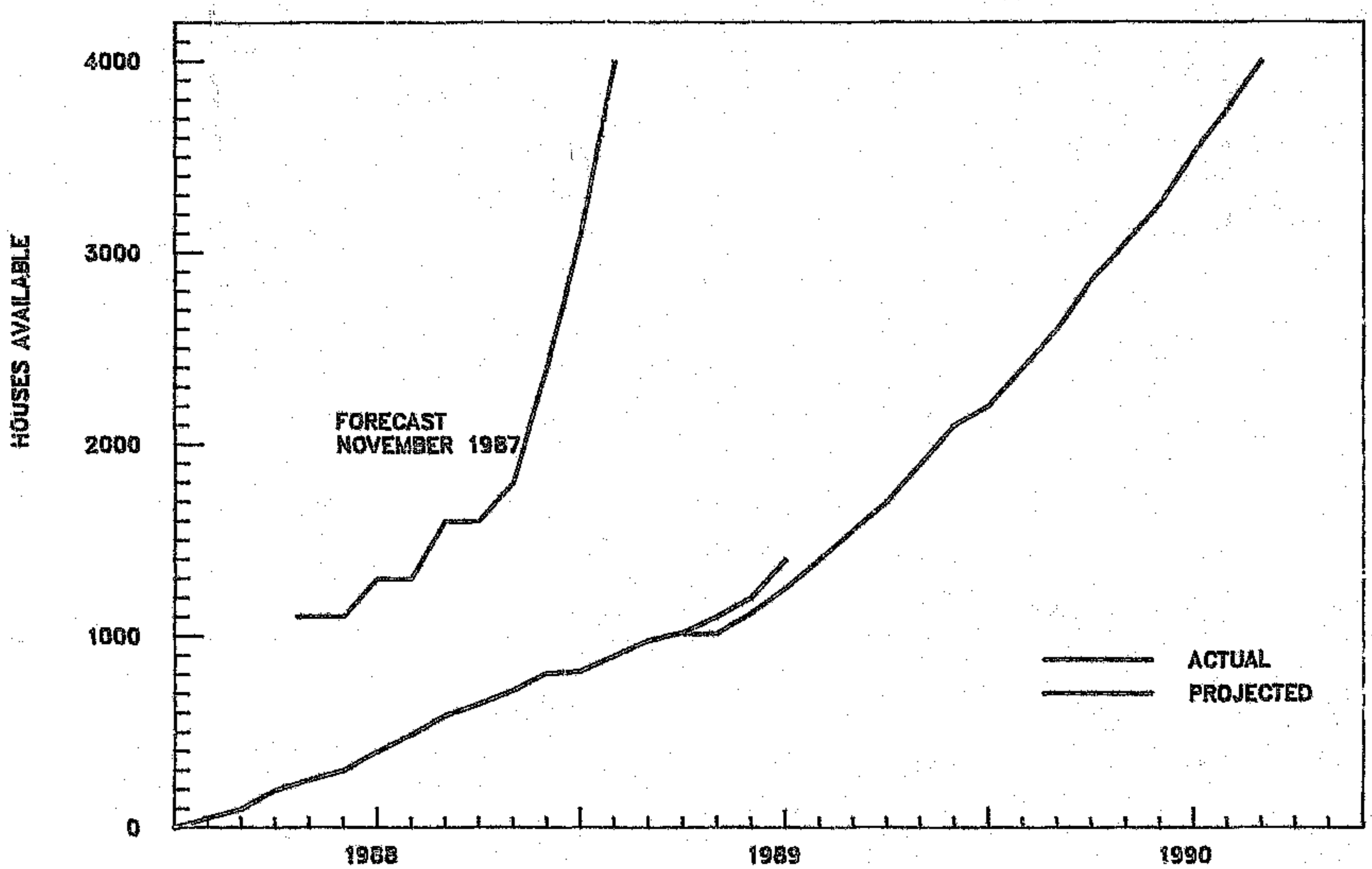
The issue that stood out most in this category is that of very slow progress with the construction of houses, especially taking into account the nature of Anglo's pro-active involvement with the development, and their continuous lobbying both in the private sector, as well as in the public sector, even up to ministerial level. A comparison between planned and actual progress is depicted in figure 4.

Both private sector developers, as well as public and semi-public sector participants such as the National Housing Commission and the SA Housing Trust progressed much slower than expected. Private sector companies would, for instance, promise the world when trying to obtain land for development, but once the contract has been signed, progress would be considerably slower than what was agreed upon. The SA Housing Trust had promised their active support for the project as early as June 1987. However, by August 1989 they had not progressed any further than the construction of a number of show houses. This apparent lack of commitment could not be attributed to any single reason, but was due to a number of contributing factors that fall outside the scope of this investigation.

It also became evident that the private sector only addressed the top end of the housing market, ie above R30 000 (the top

FIGURE 4:

CONSTRUCTION OF HOUSES IN THABONG



15% in the case of Thabong), while the SAHT and the NHC were the only two organisations involved in the provision of housing for the low income groups. This was a further factor prohibiting development.

The above situation could mainly be attributed to a lack of building society finance for housing below R 30 000. Even at this level bonds were difficult to obtain and the societies appeared to be limiting their exposure to the black housing market in general, although they would never admit this publicly.

The result of this slower than planned progress with township development and housing construction, was that the bulk and connector services projects which were undertaken by the council to open up the new areas for the private sector, were not optimally phased. In general, the increase in capacity that was provided in the first phases of the bulk services projects, was too large. This effect was that too much capacity was idle for too long. This once again had serious financial implications for the Council.

It was evident from the outset that a need existed for the provision of site and service projects for the low income groups as a large percentage of the population fell into an affordability group that put formal housing beyond their reach. However, no subsidies for such a project were available and the Regional Services Council for the goldfields area had at the time of writing not commenced with its work. The structuring of such a project with loan funds was attempted. However, as there were so many other urgent problems to attend to and as the consultants involved had no experience with the structuring of such projects, this never got off the ground.

Similarly, it was evident that there was a need for the upgrading of the old areas of Thabong. This project would also have had to be financed with loan funds and as issues such as cost recovery and willingness to pay could not be resolved, coupled with the lack in capacity to adequately prepare the project, this project was also never realised.

Agreements between the Council and private developers that allowed the latter to undertake township development, were drawn up by the developers' attorneys, approved by Thabong Town Council and finally approved by the Provincial Authorities. In the author's experience in Thabong these agreements were drafted from a legal perspective in order to comply with the law, and did not necessarily take project specific risks into account. The end result was that the agreement exposed the council to risks that were outside their control. For instance, the council was, in terms of the agreements, responsible for the installation of bulk services to a developer's area. This involved a capital outlay which in turn led to financial losses by the council if the development, subsequent occupation of houses and concomitant income from rates and taxes were not realised when programmed. The agreements between developers and the council did not make provision for such risks and in the case of Thabong, this cost the council substantial sums of money.

In addition, Councillors, especially the mayor, would enter into agreements with township and shopping complex developers on an ad hoc basis and without proper consultation with either officials or consultants. For instance, during 1988 Thabong's mayor entered into an agreement with a developer for the construction of a huge central business development. No proper investigations were, however, undertaken beforehand as to the availability of bulk services or the financial implications to the council of this envisaged development. The development agreement, as drafted by the developer was structured to provide this particular organisation with an open-ended pre-emptive right to the development of a CBD. In addition all shopping centre developments within a radius of five kilometers from the CBD site were prohibited. Soon thereafter the mayor entered into a second agreement with another developer for the development of a regional shopping centre which was situated only 2,5 kilometers from the first.

In the planning for the extensions to Thabong, a number of school sites were earmarked for development by the Department of Education and Training. It soon became evident however that this department did not have nearly enough resources for meeting the backlog and future demands brought about by the rapid increase in population growth. Negotiations were held at ministerial level, but to this day no new schools have been constructed in Thabong.

No other social infrastructure, such as creches and recreation facilities had up to that stage been provided for the new areas. Thabong was however fortunate in that Anglo had, through its chairman's fund, made funds available for the provision of clinics and ambulances, thereby ensuring that health facilities were adequately provided for.

As the development of the new areas progressed, a number of additional problems came to light, from which it was evident that the project as a whole had not been adequately prepared. Examples are the issues of cost recovery and the financial structuring of the projects. For instance, the original loan to the Development Bank contained an amount of R 1,5 million for the construction of sewerage facilities. This amount was later revised to R 4,5 million because of two reasons. Firstly, the consultants made an estimating error and secondly, developers found it unacceptable to recover part of the bulk services costs through the selling price of the houses. The whole question of cost recovery of the infrastructure, ie through rates and taxes, or through the selling price of the particular service, or through up-front payments, should have been investigated in-depth beforehand and should also have formed part of the overall structuring of the bulk and connector services projects.

Other aspects that later proved to have been inadequately prepared were the question of privatisation of certain of the services (such as the provision of electricity), the question of maintenance and the impact of the new extensions on the maintenance requirements of the council, which should all have been addressed at an early stage.

5.4.4 A need for Long Term Planning

Until the recent change in the Government's urbanisation policy, Thabong had been regarded as a dormitory town and until 1986 all development was undertaken with this as departure point. What we were subsequently concerned with, was the development of a balanced town that should provide in all the requirements of the inhabitants.

Throughout the author's involvement with the development of Thabong, it was evident that this historic role of the black urban areas, coupled to the emphasis on physical development and the immediate need for large scale housing projects, created the danger that Thabong could continue on the road of developing into an unbalanced entity. For instance, the financial difficulties experienced by Thabong were largely due to the lack of an economic base, which was, inter alia, in turn a symptom of unbalanced urban development. On the other hand, the broadening of the town's economic base was not a simple issue. It was not something that could be implemented against economic forces but required careful planning.

Even though Thabong had embarked on a route of increasing the original size of the municipal area by a factor of 2,5, and while a structure plan had been compiled for its physical development, there was no long term vision or goal for its ultimate socio-economic development. In addition, Thabong had no overall long term financing plan to determine whether the route that they had embarked upon was financially feasible and sustainable.

Those involved with the development in Thabong furthermore realized that little planning had been done to address issues such as employment creation, the need of the very poor, and an optimisation of the long term economic development of the town.

Although there had been talk in Thabong's development committee of long term socio-economic planning, this had not materialised, mainly due to the immediate pressures of the demand for housing and infrastructure that needed to be satisfied. It had therefore been a case of attending to the urgent and leaving the important for later.

5.5 CONCLUSIONS

This case study leads to the following important conclusions:

- project managers who are concerned with the long term success of urban development projects, must also ensure that long term socio-economic planning is being undertaken and implemented, in order to ensure that development is being directed towards the ultimate development goals. The focus with long term planning should not be on individual projects, but about relating the growth of fast developing urban areas, to economic development, about the process of ensuring that a city in the making will perform better. If this is not done, projects will be undertaken on an ad-hoc basis and investment decisions will be sub-optimal.

- community participation is of vital importance in the planning process

- the biggest constraints in the development of South Africa's black town's and cities are the ligitimacy of local authorities and the capacity for local authority management. Although many local authorities may be better equipped than Thabong to undertake the management of their own affairs, the expertise is often situated in a few individuals and should they leave, total collapse of the administration is a distinct possibility

- the financial position of black local authorities often leaves a lot to be desired. Projects undertaken for such organisations should take this into account and should be structured accordingly. One of the objectives of projects undertaken in this environment should be a limitation of the financial risk to the local authority. In addition, projects should be structured with optimum cost recovery and an improvement of the local authority's financial position as prime objective

- it serves little purpose to implement technically sound projects in an environment where the developmental or peripheral issues are not being addressed. The technical enigneering aspects pertaining to urban development are generally well addressed, at least in comparison to the almost total lack of expertise in other areas of development. In the developing urban areas the peripheral issues are often most important, and should they not be adequately resolved it could lead to the failure of the project as a whole. Project managers should make it their task to address these issues, as there is usually no one else to undertake this task. Projects should be used as vehicles or mechanisms for addressing the most important of these developmental issues

- one of the important peripheral issues with large scale urban development projects, is that of outside structural constraints that render progress much slower than what would be regarded as realistic on paper. Due to the uncertainty of what the actual rate of development would be, projects should be phased as far as feasible, in an attempt to limit financial risk

- agreements with private sector developers require careful consideration

- the provision of social infrastructure is often neglected

- due to the pressures for physical development, environmental considerations are seldom taken into account in the planning for urban development and urban development projects

The overriding conclusion from the two case studies is that projects in the developing urban areas are often jeopardised by issues that have traditionally been considered to be outside the scope of the civil engineer's responsibilities. Considering the comparatively high level of technical expertise amongst engineers, there is a much higher risk of money being squandered through the wrong approach to projects, than through technological error.

Thus, the two case studies concerning Mangaung and Thabong have revealed the need for further consideration of a number of issues which can be grouped as follows:

- socio-economic planning / development planning

- urban managerial matters

- urban financial matters

- technical, environmental and project related issues.

These issues will be explored in more detail in chapters 6 to 9. Where possible, practical approaches to overcoming these issues will be suggested. Chapter 6 discusses socio-economic planning; chapters 7 and 8 address urban managerial and financial matters and chapter 9 explores technical, environmental and project related issues.

CHAPTER 6

DEVELOPMENT PLANNING

6.1 INTRODUCTION

In the years ahead, and well into the next decade, urban professionals and administrators face the formidable challenge of planning for, and managing unprecedented urban growth in a period marked by severe economic difficulties, sharply limited resources, and major institutional and economic reforms. Serious national economic problems are likely to continue, creating practical limitations on any ideas about development issues (refer to chapter 2).

Yet, rapid urban growth will continue and with it many difficult urban problems will be experienced. The challenge will be to structure urban development in such a way that urbanisation becomes a partner in national development. In order to achieve this the efficiencies of urban economies have to be optimised. Which again implies that there will have to be a growing emphasis on macro-economic considerations in urban development planning.

Chapter 2 concluded that, whereas urbanisation has in the past been regarded as a burden on the economy, it is now considered as an opportunity for further economic growth. To achieve maximum economic growth, however, it is a prerequisite that careful socio-economic planning should be undertaken. Both case studies in chapters 4 and 5 also concluded that long term development planning is a necessity in order to avoid the undertaking of projects on an ad hoc basis.

The historic role of S A's black urban areas, namely that of dormitory towns, coupled with the current emphasis on physical development, created the danger that these towns and cities could continue to develop into unbalanced entities. For instance, the current financial difficulties experienced by most black local authorities are partly due to a lack of an economic base, which is in turn a symptom of unbalanced urban development.

Traditionally civil engineers have not been equipped to undertake such economic planning. However, they have been actively involved in the provision of infrastructure for the urbanizing areas and should the civil engineer as project manager wish to retain his leading role in urban development, he must certainly become familiar with the economic planning process, at least to the extent that it will enable him to effectively manage the process.

At the time of writing, the concept of planning for the long term socio-economic development of SA's black urban areas had just been accepted by the Provincial authorities and the Regional Services Councils, as being inevitable. Even the Development Bank who pioneered the concept for SA, had only commenced with the drafting of a number of such plans as case studies. No planning has been completed and it was therefore not possible to refer to practical examples. The contents of this chapter could therefore be regarded as being too theoretical, but the concept of socio-economic planning is considered to be of such importance that it must form part of any investigation concerning the management of the urban development process.

This chapter firstly proposes a methodology of planning for economic development, and secondly discusses the concept of urban development plans that were initiated by the Development Bank of Southern Africa (DBSA). Lastly some practical implications of socio-economic development in SA's urban environment are discussed.

6.2 PLANNING FOR ECONOMIC DEVELOPMENT

Economic development cannot start from the assumption that certain kinds of projects will be necessary or desirable. Like all planning, planning for economic development must involve the following steps (after Bendavid-Val, 1980):

- data collection and analysis
- formulation of goals for economic development
- formulation of objectives or performance targets
- identification of alternative development strategies
- comparitive assessment of alternative strategies
- implementation planning

The planning process would then be followed by implementation of the actions decided upon.

The above steps have been described in the paragraphs below. (Bendavid-Val).

6.2.1 Data Collection and Analysis

Data-gathering activities should be carefully planned and should distinguish between data that are essential, data that are useful and desirable, data that would be useful but probably not essential and data of a lower priority. Data can be collected and analysed in various ways of which the following division proposed by the DBSA is but one: economic, financial, social, institutional and physical.

6.2.2 Formulating Goals for Economic Development

Formulating goals for the future development of the local economy is a big responsibility. Funds that are invested into the local economy are scarce and investment in one thing means that an investment is not made in an alternative. It is therefore important to ensure that:

- every major investment in the local area will contribute to achieving economic development goals

- each investment represents the best among available alternatives at a time, including a zero investment

- it will not create side effects inconsistent with community goals

- it will not foreclose the possibility of certain future activities that may make a greater contribution to goal achievement.

This requires planning based on the articulation of explicit goals. Taken together, economic development goals reflect the community's future image of itself. Before any goals are formulated an effort should therefore be made to identify the qualities of community life in the future to which economic development activities should lead. Community participation is of the utmost importance in the formulation of development goals. Quite often development plans start with statements of problems and opportunities. Such statements cannot be the starting point for goals formulation because it is impossible to establish what is a problem and what is an opportunity without goals that reflect the future self-image of that specific community. Consultants can assist in goals identification but they cannot do it on behalf of the community because they lack the local expertise. For instance, in recent disucssions between the author and council members from Soweto and Dobsonville it was evident that these two neighbouring communities have completely different goals for their future development. Soweto wishes to extend their boundaries as far as possible and even wants to incorporate neighbouring black authorities into their municipal area. They also want to extend their boundaries to the west, as far as Randfontein. Dobsonville on the other hand, wishes to retain their present "small town" character and has set a limit on expansion of twice the present size. At the same time, however, they wish to expand their economic base in order to become financially self-sufficient.

Goals are useless unless they help separate the desirable from the undesirable. Thus they must be relatively specific, though they will be further refined and quantified into objectives. For instance to "stimulate growth" is not a goal because it provides no guidance. It is merely a notion because it is insufficiently explicit. Goals must furthermore be realistic.

If the step of goal formulation is carried out carefully so that it concludes with a final formulation of a proper set of goals, everything else will follow more easily because every succeeding step can be checked against the goals. For this reason it pays to spend time on goal formulation and to avoid the temptation to give it short shrift in favour of focussing on projects, as is currently so often the case in South Africa's black urban areas.

6.2.3 Formulating Objectives

Goals are aspirations, objectives are targets. You set dead aim for a target, you either make it or you don't. Having made the target, you may have made the goal, or making the goal may require hitting several targets simultaneously or in succession.

Without explicit objectives as performance targets, there can be no rational basis for a goal-orientated economic development action plan. The practical intent of every goal should therefore be satisfactory expressed through the performance targets.

An example of an explicit goal is "increase the number of small manufacturing firms in a specific city". This goal may be expressed as one of the following objectives:

- establish a revolving loan fund of no less than R500 000 for small manufacturers within two years or,

- bring about the establishment of a new manufacturing firm in the city, employing 50 or less, each year for 10 years.

6.2.4 Identifying Alternative Economic Development Strategies

Strategies represent broad approaches to reach objectives, whereas projects and actions are specific courses undertaken as the applied expression of a specific strategy. Strategies as defined here are not essential elements of the planning process, they constitute an additional step in the going from general to specific (ie from future image to goals to objectives to strategies to projects). It is strongly recommended that time be taken to examine explicit alternative strategies and to attempt to assemble and consider alternative project proposals within strategic frameworks.

In practice it is often found that the most obvious or traditional course of action is pursued without due consideration of any alternatives. This is one of the major reasons why first world technologies are often applied to third world problems. It is believed that an integral and important part of the project manager's task is to ensure that all alternatives are identified and assessed and that the obvious alternative is not automatically implemented.

Techniques such as brainstorming, lateral thinking and synectics can be useful to produce new ideas and to divert the focus from the most obvious course of action. The focus should firstly be on alternative strategies as the formulation of such strategies will probably in turn lead to the identification of a number of alternative projects for each strategy identified.

6.2.5 Comparative Assessment of Alternative Strategies

The purpose of this step in the economic planning process is to compare the proposed economic development strategies and actions in order to determine which should be undertaken. The various alternatives are analysed and prioritised in terms of their relative contributions to the objectives identified.

6.2.6 Implementation Planning

Implementation planning involves sketching out a longterm economic development program and then a detailed schedule for the first coming project cycle.

The long term economic development program can be represented by a variation of the Gantt chart showing the schedule for the implementation of all the major economic development-related strategies and actions that lead to the achievement of the objectives and goals. These are represented on bars also indicating milestones.

6.3 URBAN DEVELOPMENT PLANS

The Development Bank of Southern Africa came to the conclusion that urban development and urban development projects were often undertaken on an ad hoc basis. DBSA therefore developed a framework, named an urban development plan (UDP), which is basically a strategic development plan for guiding the economic, social, managerial and physical development of a town in the pursuit of optimal utilisation of resources.

The UDP culminates in a development strategy and an implementation plan which includes a 5 year financing plan (DBSA, 1989a).

The UDP is made up of three phases called the "perspective", "alternatives for development" and the "development strategy". Each of these three phases are discussed in the following paragraphs.

6.3.1 The Perspective

During this phase the idea is to assess the current status of an urban area and also to establish what its leaders and citizens would like it to be.

The first step then is to gather information in order to assess the town's current status regarding the following:

- the town's role and place in a national and regional context

- a local assessment of the town in terms of:

  - socio-economic conditions such as population growth, affordability levels and unemployment

- the housing situation, for instance: the existing housing stock, rates and tariffs, collection strategies, arrears management and the identification of possible constraints on the housing process

- the status of development, for instance: the number of serviced erven available, a survey of instances involved in the housing process, agreements with developers and the levels and standards of existing services

- the managerial and financial position of the local authority

- services infrastructure, such as upgrading requirements, tariff structures, metering of services, etc

- social infrastructure, such as schools, recreation facilities and public transport

- commercial infrastructure, such as industry, commerce and trade and government establishments

- required and possible land extensions

The idea behind the gathering of information is not to undertake new surveys but to utilize existing information as far as possible. Once this information has been studied, one will have an overview of the city or town, as well as a proper insight into the problems and opportunities of that particular urban area.

Phase 1 also includes an analysis of backlogs, projected needs and upgrading requirements for the:

- -housing demand in terms of income categories
- -differentiated levels of services and utilities
- -population densities
- -demand for commercial infrastructure
- -infrastructural services
- -institutional capacity
- -demand for entrepreneurial development support.

The last, but most important step in the perspective phase is to determine what the goals and objectives of the community and their leaders are:- What kind of town do they want theirs to be?

While the information gathering exercise could be undertaken by consultants, it is of the utmost importance that the goals and objectives should be determined by the community (refer to paragraph 6.2.2 above).

6.3.2 Alternatives for Development

With the existing goals and objectives known, the next step is to answer the question: how do we get from where we are to where we want to be? Various alternative solutions must be defined and then investigated to determine whether they are affordable and practical. Financing plans which contain possible sources of finance for the alternative strategies identified, as well as cash flow analysis must be undertaken in order to determine whether alternatives are in fact practical and implementable.

After alternatives have been studied, the leadership and community of the town must decide which is the one they want to implement, bearing in mind the financial implications of that particular alternative. Community participation is again of extreme importance at this stage.

6.3.3 The Development Strategy

With the strategy already chosen, the final step is to work out the development plan in great detail and to decide on actions to be taken for the implementation of the strategy. It is at this stage where projects are prioritised in order to contribute optimally to the chosen strategy.

The author believes that the project manager has an important role to play at this stage in order to ensure that projects are optimally structured to contribute maximally to the development objectives and the development strategy. At this stage it is important that the emphasis is shifted to action, in order to ensure that the plan is implemented.

6.4 PRACTICAL IMPLICATIONS OF SOCIO-ECONOMIC DEVELOPMENT PLANNING

It is evident from paragraphs 6.2 and 6.3 above that socio-economic development planning should be undertaken for each urban area on its own in order to determine the specific development problems and opportunities pertaining to that specific area. It is evident that the final development strategy will differ from one area to another as no two urban areas are identical. Identified projects will also differ substantially from one area to the next. However, while the ranking and importance of the issues may differ, the socio-economic problems generally remain a common denominator for most of South Africa's developing urban areas (refer to chapter 2).

Assuming therefore that the socio-economic circumstances of a particular urban area do not differ significantly from the general picture described in this report, the following aspects will probably feature in one way or another, in the development strategy of that area:

- <u>Employment creation</u>: In chapter 2 it was concluded that South Africa has a structural unemployment problem. What is required therefore are technologies that use more employment and an increase in the labour content of projects. For instance, where a choice has to be made between alternative methods for garbage removal, consideration should be given to those alternatives that will employ more people over the long term. However, the benefits of more employment should always be weighed up against other possible negative effects such as an increase in costs.

  Labour-intensive construction methods should also be used in engineering projects, as far as it is feasible. In the author's opinion there is much scope in civil engineering projects in the urban areas, for the optimisation in the use of labour vs machines.

- <u>Inward industrialisation</u>: Chapter 2 discussed the importance of inward industrialisation. Strategies should be devised to create a shift in consumption spending towards a more intensive use of locally abundant resources, which places the emphasis on the creation of employment, the encouragement of local entrepreneurs and a reduction in the amount of capital in any specific project or production process. The housing delivery process, for instance provides much scope for achieving inward industrialisation. Eg bricks, window and door frames, roof trusses etc, can easily be manufactured on site and local entrepreneurs could be encouraged to enter this process.

- <u>Local entrepreneurs and the informal sector</u>: Local entrepreneurs should be actively encouraged, wherever possible, to enter the market. This often requires that preferance be given to small instead of large scale projects, since small projects can be undertaken by the man with limited financial means. For instance, if large housing contracts are put out to tender, the mere size of the contract may already exclude the small contractor from participation.

  Furthermore, urban development should be structured to take the requirements of the informal sector into account and to provide for their needs. As an example, the case study for Thabong mentioned the development of a CBD. What is in fact required are facilities where the informal sector could produce and sell their goods.

- <u>Private sector participation</u>: Economists appear to have reached cousensus that the private sector should be allowed to play a larger role in South Africa's economy. The privatisation of a town's electricity supply is but one example where this principle could be practically employed within the urban areas.

- <u>Improvement in urban efficiency</u>: The inefficiencies that plague most cities - from traffic congestion to telecommunications breakdowns and poorly maintained services - impose unnecessarily high costs on business, workers and consumers. The efficiency and productivity of an urban area depends in part on infrastructure and services that are adequate, well maintained and reasonably priced.

- Creation of an economic base for the local authority and a sound urban managerial system: An improvement in the capacity to manage, and a widening of the economic base to provide more income to local authorities, are two of the most important problems to be addressed in any long term planning excercise to be undertaken for South Africa's black urban areas.

The above is a brief discussion of what are considered to be the most important economic issues to be addressed in long term urban development planning.

Other issues that may prove to be equally important are: the prevention of the leakage of purchasing power, the promotion of economic diversification, an optimisation of the use of available infrastructure and an encouragement of community participation.

6.5 CONCLUSIONS

South Africa's developing urban areas have huge backlogs in infrastructure, and the need for development is great. The need far exceeds the available resources.

Urban development projects have in the past often been undertaken without due regard to the goals and objectives of the community for which the development was intended. Projects have also often been undertaken without due consideration to the economic implications of those projects. All projects make use of scarce resources, and as such should be planned for optimal use of those resources. Sou[illegible]a's urban areas are growing at an unprecedented pace [illegible] this is bound to continue well into the next decade. [illegible]an projects are not undertaken in optimum support of mac[illegible] economic development policies, a great portion of this nation's resources will be wasted.

It is for this purpose that development planning in an urban environment is indispensable. Although most engineers are not qualified to undertake the required economic analysis, they should be aware of the existence of such planning methods, and of the importance thereof. Where engineers play a leading role in the urban development process, they should ensure that such planning is undertaken and they should perform a leading or managerial role in this multi-disciplinary process.

CHAPTER 7

URBAN MANAGERIAL CONSIDERATIONS

7.1 INTRODUCTION

7.1.1 Background

Until 1971 blacks were seen as temporary residents of South Africa. Blacks resident in towns outside the white urban areas fell under the jurisdiction of white local authorities. In 1971, administration boards were created in terms of the Black Affairs Administration Act of 1971. These boards were extensions of the Central Government and were not regarded as local authorities (Vallun, 1986).

Shortly afterwards, community councils were created in terms of the Community Councils Act. This was seen as a step towards the recognition of the permanence of blacks in white urban areas, however, these bodies did not have the powers of local authorities but were merely intermediaries for the administration boards.

In 1982, the Black Local Authorities Act created black local authorities. With the promulgation of the Black Communities Development Act of 1984 administration boards were replaced by development boards. Under this act the development boards still had much power, thus restricting the authority of the black local authorities.

It was not until the promulgation of the Amendment Act on the Development of Black Local Communities (Act 74 of 1986) that black local authorities were made autonomous. The development boards were also abolished at the same time under the Abolition of Development Bodies Act, although the act stipulated that former rights, powers, obligations and employees be taken over by the various Provincial Administrations (Vallun, 1986).

7.1.2 Capacity to Manage

White local authorities had a long history of evolutionary change to reach the present state of development and effectiveness of operation. From the above brief description of the history pertaining to black local authorities, it is clear that neither the voting public, nor councillors, nor officials have been given any chance to prepare themselves for their new role. Councillors, for instance are largely ignorant of their responsibilities and duties. It is therefore not surprising to find that most black local authorities are at present ineffective and inefficient. In many cases the administration of cities have virtually come to a standstill with mal-administration as the norm rather than the exception. The fact that many officials from the previous development boards left for greener pastures when the boards were abolished, combined with a situation where few black personnel were trained in local authority affairs during the preceding periods, and the political situation and work environment in black towns which make it difficult to attract personnel from white local authorities, resulted in a situation where competent staff are virtually impossible to find. In addition, the functions of development boards were not identical to that of local authorities and personnel that took up positions in the newly established local authorities or in provincial administrations where their role is to provide guidance to local authorities, do not necessarily have appropriate experience in local authority affairs.

The capacity of black local authorities to plan for optimal development, implement projects and to maintain assets is thus extremely weak. This statement is clearly substantiated by the two case studies in chapters 4 and 5.

The seriousness of the situation cannot be overstressed. In recent discussions with the chief director of community services from one of the Provincial Administrations[1], he stated categorically that none of the black councils in that province were in a position to manage themselves effectively. The extent of the problem is clearly evident when the structure and staffing of a town like Tembisa is compared to that of any of the neighbouring local authorities.

The most serious threat to orderly and economically effective black urbanisation is the impeding threat of the collapse of local authorities.

7.1.3 Importance of Urban Management

Better municipal management in everything from local finances to road maintenance is absolutely essential if developing cities are to catch up with rapidly expanding needs for services and facilities. Physical investments alone are not enough. This lesson has been learned over and over in other developing parts of the world (Urban Edge, Feb/March 1987). The usual request from local authorities is for hardware, for projects that are tangible. Once legitimate local authorities have been established, the most critical issue in urban development will be the capacity of local authorities to execute local authoritiy functions efficiently. Criticism of existing local authorities has been extensive regarding legitimacy and their lack of capacity to maintain their assets, to collect revenues and to perform other managerial functions. Against this background if more and more projects are started and more and more hardware is given without a concomitant increase in managerial capacity, valuable resources will be wasted.

Most developing urban areas in South Africa are currently involved in ambitious expansion programmes. Such extensions to the infrastructure of a local authority have serious

1) Personal discussion with an official who wished to remain anonymous.

implications for not only the maintenance of the newly created assets, but also for the management and administration thereof. This is especially true if it is considered that these functions could in most cases not be performed efficiently by the local authorities, even before the expansion programmes were started.

Upgrading of managerial capacity is not a project, it is a long term process and engineers are not necessarily equipped to undertake such a task. Nevertheless, this chapter will show how projects undertaken correctly, could be used as effective vehicles to contribute to an increase in the managerial capacity of local authorities. Any such action undertaken by project managers should ideally be in support of institutional upgrading programmes undertaken by specialists in the field of urban management. In the years ahead, and well into the next decade, those involved in the developing urban areas of South Africa thus face a formidable challenge: managing unprecedented urban growth in a manner that will contribute to the creation of more effective urban managerial systems.

Projects structured for effecting a contribution to the creation of viable urban managerial institutions thus also present the greatest challenge to civil engineers and project managers. However, such an approach has a great impact on the approach of civil engineers to the management of projects.

Based on the author's experience over the past two years, this chapter describes some relevant practical considerations and approaches of importance to project managers who are responsible for the creation of new urban areas or large extensions to existing areas. The issues have been grouped under the headings of managerial considerations, community participation, maintenance and operation of infrastructure, privatisation and the new town concept and section 21 companies. Conclusions are contained under the heading of "implications for the project manager".

The next chapter contains related approaches pertaining to urban financial matters.

7.2 MANAGERIAL CONSIDERATIONS

In considering the ability of an authority to render municipal functions effectively, the main concern is for the financial and organisational capacity of such an authority.

A manager of urban development projects can contribute in two ways to the creation of a more effective local authority. Firstly, the importance of effective urban management should be stressed and the project manager should emphasise the absolute necessity of this function. This may sound obvious, but this aspect is often not allocated a high enough priority with the result that the subject is neglected until a very late stage, to the detriment of the project and development in general (refer to the case study on Mangaung in chapter 4). Where possible, the project manager should ensure that the local authority is assisted by specialists to upgrade their capacity for management.

The second way by which the managerial capacity of local authorities can be strengthened is often easier to implement since it is directly related to the task of the project manager. This method necessitates that the project manager should use projects as vehicles for strengthening the local authority's managerial capacity. This implies that projects should be structured in such a manner that specific consideration is given to a maximisation of local authority participation in the planning and decision making process.

Often this can only be achieved at the expense of a slower rate of progress with planning and design, however, the benefits in terms of an increase in the capacity for decision making of councillors and officials alike, is considered to be well worth while. An additional advantage is that projects are structured in accordance with the wishes of the community (at least as far as councillors can be considered to represent the community) and that councillors have a first hand knowledge of the long term planning for their specific wards and are thus in a better position to keep voters informed.

The following paragraphs present some practical considerations for effecting the above.

7.2.1 Community Participation

Community participation has as its objective that the intended beneficiaries of the development process need to share in the responsibility for development initiatives, priorities and particularly for achieving sustainable development (DBSA, 1989b). As a result, it is generally recognised nowadays that community participation should be actively sought in the planning of projects. There are however much diverse views on how this should be achieved. On the one extreme of the scale community participation is merely considered to be an information exercise where the community is told what has already been decided by planners and bureaucrats. The other extreme is where an in-depth study is made by sociologists and anthropologists to establish what makes a particular community tick (Abbott, 1988), many a doctoral thesis has been written on the needs and requirements of communities. Studies of communities may thus take years if left to the social disciplines. In contrast, project managers are normally appointed to manage the planning, design and construction of a specific project and must therefore be able to show progress.

The question therefore remains how to achieve community participation on a practical level in the planning of urban development and large scale urban projects. The author believes that in South Africa's developing towns and cities this should ta   lace through the elected town councils. No doubt many people will reason that the current elected councillors do not represent the communities for which they stand and that they should therefore not be recognised in community participation exercises. Even if this was true, it is still recommended that communities should be reached through the councils as this is the only way in which the institution l capacity of the developing urban areas can be stre gthened. This does not imply that socio-economic surveys, and surveys to establish the needs and priorities of communities should not be conducted amongst communities, nor that other community groups should not be consulted, but merely that councils should be participants in the planning of such actions and the main thrust of community participation should be through the local authorities.

Local authorities can be said to have two basic functions (de Gasparis, 1989):

- the provision of services to the community
- the management of the community

The first function, the provision of services is relatively straightforward. The second function, the management of the community is more complicated. It entails matters such as deciding on the priority of the services to be provided, planning decisions for the future of the town, the acquisition and allocation of funds etc. Overall, for maximum effectiveness, it is important that the management function is performed in order to advance the public's .nterest.

In the past the tendency has always been for the authorities to plan and decide for the community. The result has been a lack of commitment towards the prescribed project, or utter indifference. It has become imperative therefore to move away from this defunct school of thinking and to do the reverse, ie instead of top to bottom planning, planning should be undertaken from the bottom to the top. The two key principles are communication and involvement. Communication must be two-way. Not only must the community be as fully informed as possible about the urban development plans affecting them, but they must also be given the opportunity to provide input.

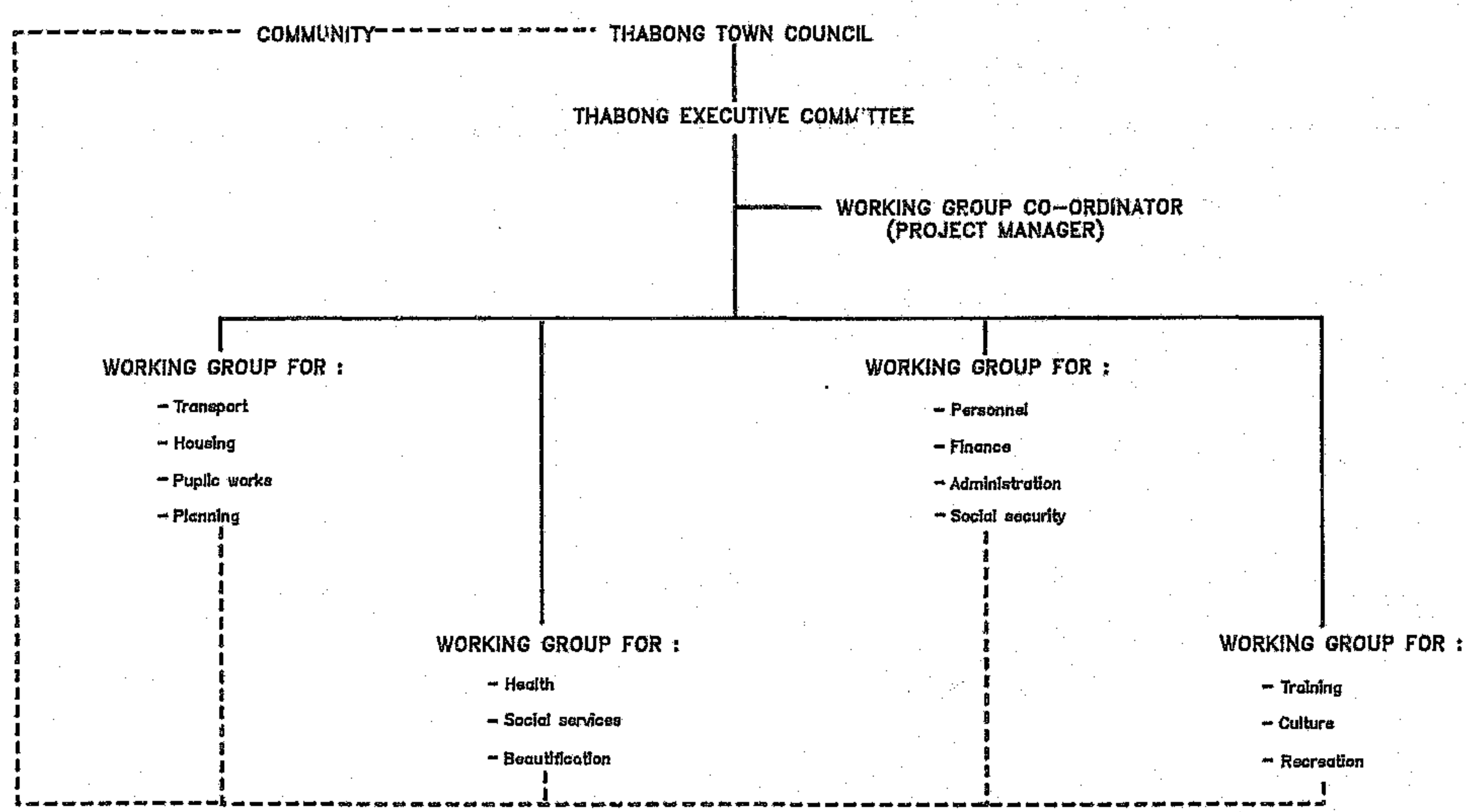
One way of achieving this is to form ward development committees that in fact act as mini-councils for their ward members. Such ward committees could be used to identify the needs of a particular ward and to identify projects to be undertaken. These committees then act as direct link between the community and the council. Another way is through public meetings, surveys and newsletters, but it is important that the community be given the opportunity to communicate its responses in return.

Councils usually establish standing sub-committees to investigate certain specific aspects of local government and to make recommendations to councils on these matters. Often however, these committees are not effective as the members lack experience and knowledge of how such committees should function and of local authority affairs in general. These committees nevertheless present an opportunity for creating an interface between councillors and projects. It has been found in practice that these committees present ideal opportunities to address not only projects, but also development issues and that such committees can be used effectively for the strengthening of institutional capacities.

The author was involved in instituting such an arrangement in Thabong which is situated close to Welkom in the Orange Free State (refer to the case study in chapter 5). Figure 5 on the next page depicts the organisational structure of the working groups which appeared to be functioning well.

FIGURE 5:

COMMITTEE/WORKING GROUP SYSTEM FOR THABONG



Thabong town council had eight standing sub-committees which were combined to form four working groups in order to make it more manageable. Between two and five councillors were represented on the working groups and so were the relevant departmental heads. In addition, consultants, representatives of the Provincial Administration and financial institutions were co-opted on the working groups as and when necessary. One of the councillors acted as chairman.

Many issues that were referred to the working groups were of interest to more than one group. The project manager thus performed a vital role in ensuring that co-ordination took place between the various working groups and also in ensuring that communication between the groups and the executive committee was functioning well.

For instance, standard forms were developed to ensure that communication took place on a structured manner. The working groups addressed both project issues and development issues. Councillors often also brought problems of a general nature to these groups.

Each working group had a standard agenda which covered the items that the group had to address. The agendas were extended, shortened and items were added by the project manager in consultation with the chairman. The project manager had to ensure that all aspects were adequately covered and that duplication was avoided.

Guided by the agenda, a working group would make recommendations on:

- what needed to be done
- who needed to be involved
- when submissions were to be available

- which aspects were to be considered by the executive committee.

The working groups did not keep conventional minutes. "Minutes" in the working groups consisted of an attendance list and a schedule of decisions with an action column and a report back date. All submissions, reports, requests or any other input into the working groups were in writing and these were added to the above to make up the minutes of meetings. These minutes were only circulated to members of the relevant working groups, but were available for perusal by members of any other group.

Any submission or recommendation to the executive committee was entered into the standard form of submission and any comments and recommendations were entered into the space provided for that purpose. Formal feedback to the working group consisted of matters referred back to them by the executive committee as well as council resolutions.

All instructions to consultants and specialist advisors were first formulated and discussed by the relevant working group before appointments were made. This facilitated the optimal structuring of projects.

From the above it is evident that working groups had no executive or decision making authority but merely acted as advisory bodies on specific aspects. Close liaison with the community was maintained by insisting that councillors consult voters on all critical issues. Ideally, this contact should have been established through ward development committees, however, for the case under consideration this was not the way it was done.

Through the above process town council officials and councillors can all be involved in the decision making process and over the long term this could definitely have a considerable positive impact on the institutional capacity of local authorities.

It is believed that the involvement of communities in the identification and management of projects has positive consequences in at least three important aspects (de Gasparis, 1989):

- community participation helps to create an organisational structure and a momentum that continues after project activities are concluded and provides the basis for a sense of responsibility towards the success of the project

- active community involvement at all stages of project design and implementation is the most effective way to develop and maintain a commitment for cost recovery

- the organisation, motivation and mobilisation of community groups could well become the main function of a new type of local authority service. Rather than attempting to deliver services to people, local government and people resources should be combined to achieve urban service goals more effectively and efficiently.

However, it must be stressed that community participation has recently become a cliche, is not easy to implement and takes up considerable time and effort. While community participation is all important, it is also necessary to strike the correct balance between participation and the rate of progress with development projects.

7.2.2 Maintenance and Operation of Infrastructure

In a first world environment engineers and project managers rarely have to concern themselves with the operation and maintenance of projects, although it can never be taken for granted that these aspects will automatically be taken care of. However, seen against the lack of institutional capacity in the developing urban areas, the issues of operation and maintenance are of the utmost importance. The general shortage in skilled manpower in South Africa furthermore underlines the issue, since it is unlikely that the level of technical expertise in the developing urban areas will increase substantially in the foreseeable future.

Consulting engineers used to designing projects for the first world component of our society often do not give adequate consideration to these aspects. The reason for this is two-fold. Firstly they have in the past been involved in dissimilar conditions where they have not been expected to take this into consideration, and secondly operation and managerial aspects are often not considered to be included in their brief.

It is in this context that project managers have a vital role to play in ensuring that projects are structured to take this into account. Project managers must thus act in an intermediate capacity to ensure that institutions are geared for future maintenance requirements or alternatively that projects are restructured to match the institutional capacity of the authority involved. In practice, it is likely to be a combination of the two.

It is impossible to provide general guidelines in this regard as the appropriate action will depend on the specific circumstances involved. Whereas a local authority such as Soweto may have the expertise to operate a technologically advanced sewage purification works, this may not be the case for many other black local authorities.

South Africa is characterised by so-called white and black local authorities, often in close proximity to each other. The disparity in level of institutional expertise in these adjoining authorities is more often than not, very significant. Generally white local authorities have highly developed institutions with considerable managerial capacity. Project managers can often act as catalysts to ensure closer liaison between local authorities. It is often easier to facilitate such co-operation on a technical rather than administrative or managerial level, especially where right wing groups are in power in the white councils. It is believed that such co-operation should be actively pursued and that assistance with operation and maintenance aspects are often the right place to start.

It is not only in high technology infrastructure such as sewage purification works and electricity networks and sub-stations that maintenance should be considered, but also in all other elements of infrastructure. From chapter 2 it is evident that urban areas will in future be characterised by progressively lower levels of infrastructural standards as services are provided for the lower income groups. It is common knowledge that maintenance requirements increase as the level of service is reduced. For instance, gravel streets require much more maintenance than tarred roads (Bleibaum, 1988).

In South Africa very little work has been done on the specific requirements of maintenance of low standard services. It is believed, however, that this issue must be specifically addressed by project managers involved in such projects. In Maseru the concept of length men who maintain gravel roads in the neighbourhoods where they live is now being instituted (Urban Edge, May 1989). This concept has been applied with great success in other parts of Africa, albeit in a rural environment. There should be no reason however why the concept should not work in urban areas.

It is thus evident that the issue of maintenance and operation of infrastructure needs careful consideration and planning. Often the need for innovation increases as the level of service is reduced. Maintenance and operational aspects must be considered early on during the planning stage of projects and not after the facilities have been constructed, as it is often necessary to structure and design projects with clear maintenance objectives in mind. Should training of personnel be necessary, the need should also be identified at an early stage in order to ensure that trained people are available simultaneously with the completion of construction of the facility.

It is in these aspects that project managers have a vital role to play.

7.2.3 Privatisation

Privatisation of local authority functions is one of the methods that could be employed for strengthening the institutional capacity of local authorities. In addition to the privatisation of engineering services such as sewage purification and electrification, other local authority functions such as garbage removal, meter reading, processing of accounts and financial management are, amongst others, local authority functions that could be privatised or contracted out.

Privatisation implies that a private company assumes overall responsibility for the provision and operation of a service. The local authority loses control over that function although provision is usually made for representation by the local authority on the board of the private company. The contracting out of a local authority function or service involves the performance of that function or service by a private company in terms of a contract between the company and the local authority. In this case however, the local authority remains the responsible organisation and still has ultimate control.

Should privatisation be a possibility, it is recommended that the private sector be involved as early as possible in the planning process. For instance, should electrification be considered for privatisation, the requirements of the private companies that may be involved in the operation of the facilities, should be taken into account from the outset. Such an organisation may for instance have specific requirements for the type and location of meters and the design of the distribution network.

A considerable number of investigations into the feasibility of privatisation of electricity services are currently being undertaken ..e reason for the interest by the private sector in this element of local authority services, is the potential profit to be made out of electricity. In white local authorities electricity is generally considered to be a money spinner. In this lies both an opportunity as well as a potential pitfall. When privatisation of electricity or any other service is considered, the effect on the financial position of the local authority should be duly taken into account as it can easily happen that lucrative services are privatised, leaving the council financially worse off and without access to profit generating sources of income[1]. This calls for the appropriate structuring of projects and for a balance between the interests of the local authority and the profit motive of private sector companies.

It is believed that the project manager in the developing urban areas should be aware of the above options and potential problems, and that he must ensure that privatisation as well as the contracting out of services and functions, should be addressed as one of the solutions for solving the institutional problems of local authorities.

1) Conclusions reached by the author after analysing proposals submitted for the privatisation of Thabong's electrical service.

7.2.4 The New Town Concept and Section 21 Companies

As is evident from the case study concerning Mangaung in chapter 4, there are often numerous problems associated with the planning and construction of extensions to existing urban areas. One of the ways to overcome these problems, is to complete the development of the new area and then to decide at a later stage on whether incorporation into the existing town should take place or not. This is known as the new town concept. One of the legal options for achieving this is through the establishment of a section 21 company.

The possibility of establishing a section 21 company to act as a quasi local authority, has recently been contemplated for certain developing urban areas in South Africa[1]. This concept is not without precedent as it has been applied in a few white urban areas in South Africa and is fairly common in the USA.

A section 21 company is a company that applies any profits for the promotion of its main object and that does not distribute dividends to its members.

The principle on which such a company would function, is that all owners of property in a specific urban area would become members of the company and would have the right to vote, just as for any other private company. The number of votes may for instance be determined on the basis of property values. This principle is the ultimate in privatisation of local authority functions as it entails the total privatisation of the local authority.

A recent investigation into all the major local authority functions and subsequent discussions with a representative of the companies office, has shown that it is legally possible for a section 21 company to perform all the functions of a local authority. However, the major advantage of this concept,

1) Refer to the proposed establishment of Meriting in paragraph 4.3

namely the separation of politics and administrative functions, also contains its major drawback. South African blacks have political rights on a local authority level only and a separation between politics and administrative matters on this level may therefore be unacceptable from a constitutional development perspective.

From a functional perspective, however, the new town concept and the establishment of section 21 companies as quasi local authorities nevertheless require consideration. Project managers involved in urban development projects where the establishment of a local authority on either a temporary or a permanent basis is being considered, should take this alternative into consideration.

7.3 IMPLICATIONS FOR THE PROJECT MANAGER

Local government institutions in the first world component of our society are generally developed to a high level of competence. Civil engineers and project managers therefore rarely have to concern themselves with institutional matters when dealing with projects in this environment.

In the developing urban communities, the situation is however completely different. Here urban managerial considerations are by far the single most important factor constraining development. The World Bank, for instance, cites institutional failure as the most fundamental reason for lack of project success (Bastani, 1986). In the South African context black local authorities are in their infant years, and their managerial capacity is extremely weak.

The issue of managing urban growth (or a lack thereof) and ensuring the economic productivity of the urban economies is in fact a global issue shared by all developing countries (Urban Edge, February 1985). If cities and towns are inefficient, productivity will be less, and that will have serious, indeed drastic consequences for our national economy.

It is increasingly being recognised that peoples' active support and participation not only contribute markedly towards ensuring the success of projects but that many projects will fail without them. It is believed that in South Africa's context, community participation should be achieved through the existing local authorities in order to strengthen, rather than undermine these organisations.

Although civil engineers are not necessarily specialists on urban managerial matters, they can contribute much to influence the development process positively through the appropriate structuring of projects and by using projects as vehicles for the strengthening of institutions. In addition, where possible, they can ensure that formal institutional strengthening programmes are undertaken by specialists in this field.

It should be realised that development is for the people. Many of the failures of development efforts are a result of the fact that this goal of development is not sufficiently taken into account. At the same time, it is realised that community participation has become a cliche, is not easy to implement effectively and it takes time. Community participation is a process, and it is therefore necessary to strike the right balance between progress with physical development and community participation. The level of participation should be structured in accordance with the type of project and the make up of the community, however, this facet of development must be given its rightful place in urban development projects.

In this context it is necessary that project managers must also have some understanding of the socio-political issues pertaining to the environment within which they work (Wall, 1990).

The type of project planned and implemented, and the type of technology used have a considerable impact on the future maintenance and operational requirements to be performed by the relevant local authority. It is necessary that these aspects be taken into account early in the planning process. In addition, the necessity for training of personnel to undertake the operation and maintenance of facilities, should be investigated at an early stage.

Privatisation of certain, or all of the local authority's functions could assist in creating a more efficient managerial system. Where completely new local authorities are created, privatisation of the local authority as a whole through the establishment of a section 21 company, could prove a viable alternative.

To spend money on capital works alone is not development. If there are no institutions, people and adequate systems to manage and maintain the assets that are created and the services that are provided, little has been achieved. The lack in institutional capacity is the biggest factor constraining the development of black urban areas in South Africa. Project managers and engineers have an important role to play by firstly ensuring that the implications of a weak institutional system is taken into account in the structuring of their projects, and secondly, that projects are structured in a manner that will support the building of effective local authority institutions.

The next chapter explores local authority financial issues and the financial impact of projects.

CHAPTER 8

FINANCIAL MATTERS

8.1 INTRODUCTION

8.1.1 History

During the period when black towns and cities were administered by white local authorities, the rent and services charges for black areas were subsidized from the income accounts from white local authorities. When the administration boards were established, they were confronted with uneconomical tariffs far below the actual cost of rendering services. The strategy adopted by the boards was to reduce deficits through surplus from beer and wine sales and to place levies on employers. However, the boards were still not able to make ends meet with the result that demands on Central Government funds increased annually. The privatisation of the liquor outlets and the gradual increase in transport subsidies further contributed to a worsening in the financial position of the boards.

8.1.2 The Current Situation

Rates and taxes from industries and large businesses normally make up a substantial portion of the income of white local authorities. Due to the fact that industries and businesses were traditionally not allowed to locate on a large scale in black urban areas, these local authorities have to make do without this source of income. Although the Regional Services Councils were established with the objective of providing an additional source of income to the developing local authorities, funds from this source are exclusively allocated for infrastructural projects and do not therefore directly improve the financial position of the local authorities.

The current dire financial position of black local authorities is therefore to a large extent a direct result of the historic structural distortion of the institutions responsible for the management of black urban areas, and of the earlier policies for the handling of financial matters by these authorities. A measure of the financial predicament in which the black local authorities currently find themselves is clearly illustrated by the following examples. The 80 black local authorities in the Transvaal have budgeted for a cumulative deficit of R285,5 million for the financial year ending June 1989 (Pretoria News, 4 April 1989). The Soweto city council had an accumulated debt of R701 million by April 1989 (Finansies and Tegniek, 7 April 1989) and this amount increases by approximately R8 million per month.

The current losses of local authorities are being financed by the Provincial Administrations with short term loans. However, no long term strategy or solution for the worsening financial situation of black local authorities exists. The political situation, rent boycotts and inefficient administrative systems and procedures contribute to an ever deteriorating situation. In addition, debt incurred by development boards on behalf of local authorities have been passed on to the relevant local authorities when the development boards were phased out. Soweto, for example still has to find ways and means of repaying R250 million for the electrification project and R150 million for the civil upgrading projects of the early 80's.

The basic problem is therefore one of historic neglect to create viable institutions and managerial capacity and expertise within the black community in the field of local authority managerial matters. In addition, due to the fact that black towns were historically regarded as dormitory towns, no viable economic base were created to enable these authorities to become financially independent.

The author has found that it is common for black local authorities to sell services for less than what they pay for that service. For instance, in the case of Mangaung (refer to the case study in chapter 4), electricity is sold for 5,5 cents per kWh, whereas the tariff should have been 10 cents to break even.

Most local authorities make huge losses on their trading accounts and often they are not even aware of the extent of the problem. For instance, operation and maintenance costs are often not correctly allowed for when the selling price of a service is calculated. Often water and electricity usage is not metered at each erf and actual individual consumption is thus unknown which renders realistic pricing policies difficult.

What is not generally known is that the narrow economic base of black local authorities not only affect their income, but also has implications for the purchase price of services such as electricity. ESCOM does not charge a fixed tariff to local authorities, but bases its tariff on the peak demand in relation to the volume of electricity sold to a specific authority. Because black local authorities mainly provide services to domestic users, they have relatively high peaks, whereas white local authorities also provide electricity to industries and businesses and therefore generally have a more even demand for electricity throughout the day. As an example, this policy of ESCOM results in a tariff of 7 cents being charged to Roodepoort municipality, whereas Soweto is charged 10,5 cents per kWh (Malan, 1989).

Whatever the reasons, it is evident that the majority of South Africa's black local authorities are in a dire financial position. If they were private companies, almost all would have been declared bankrupt. Projects undertaken against this background should take this important factor into account and projects should be approached and structured accordingly.

This chapter discusses some approaches that project managers should follow in the management and financial structuring of projects undertaken for black local authorities.

8.2 IMPACT OF DEVELOPMENT PROJECTS

In chapter 2, future trends in the growth of SA's urban areas were predicted. From that analyses, as well as from observations of the actual increases in the population of the urban areas, it is evident that the future growth in the black towns and cities will be high.

This implies that local authorities will be under considerable pressure to provide more and more infrastructural services. Taking into account the existing backlog in services, it is evident that the investment in services that will have to be provided in the near future will in most cases far exceed investments already made. The extent of the planned expansions to Mangaung and Thabong as described in the two case studies support this statement.

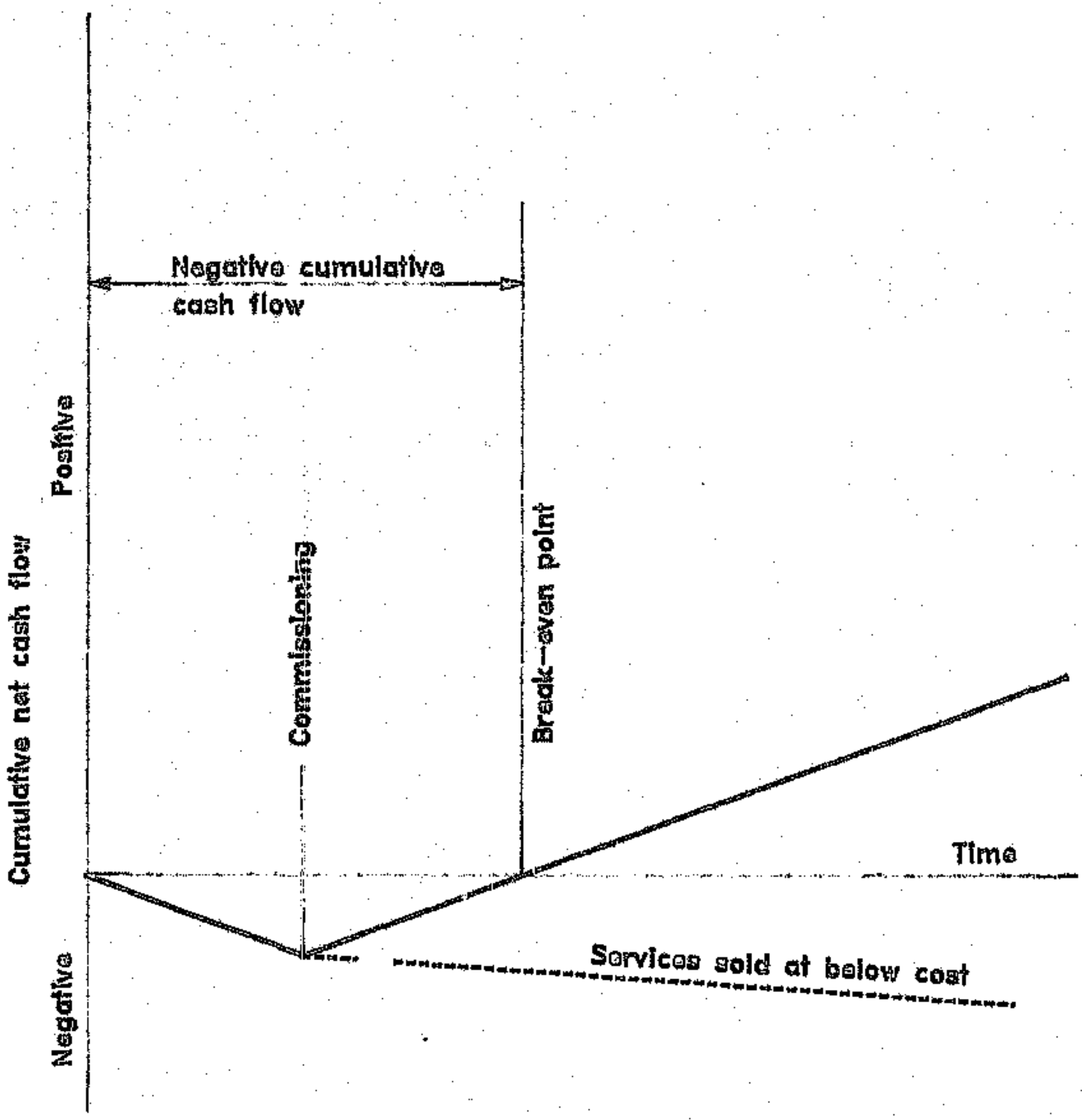
The above situation has three important implications: Firstly, while many infrastructural services (especially bulk and connector services) are installed with borrowed funds, capital redemption and interest repayments are bound to constitute a major portion of the total cost of services provision. This is evident if the situation is compared with that of white local authorities where infrastructure has been installed over a long period of time, where much of the capital has been redeemed and where new extensions form a relatively small portion of the total investment in infrastructure. A comparison between Soweto and Randburg shows that capital redemption and interest amounts to R3 per month per residential stand in the former city, whereas the comparitive cost in Soweto is R33 (Malan, 1989).

The second implication concerns operation and maintenance costs associated with the provision of services. From the case studies it is evident that many black local authorities provide services at a loss. It is evident that new investments in infrastructure and a concomitant increase in the amount of services provided, will lead to a proportional increase in losses.

The third factor relates to the typical period of negative cash flow that is inherent in any investment project (refer to figure 6). For instance, in projects for trading services undertaken by black local authorities, this period of negative cash flow can be very long indeed. This is because of the generally small profit (if any) made on these services. It is not uncommon to find the break-even period to be as long as ten years, but this will depend entirely on the pricing policy of the local authority. Where services are sold at a loss, the implication is that the break-even point will never be reached.

Due to the general lack of financial managerial skills in black local authorities, the above implications of new investments are seldom realised by local authorities embarking on ambitious expansion programmes. Even where a local authority has financial expertise, they often do not understand project financial matters. Project managers have an important role to play in this regard. In the context of black urban development, project managers should concern themselves, not only with project related finance, but also with the impact of projects on the financial position of local authorities. In this regard, it is necessary to consider the impact of capital and interest repayments, as well as operation and maintenance

FIGURE 6:
CASH FLOW FOR INVESTMENT PROJECTS



costs. It is furthermore important that these costs, and the impact thereof on the financial position of the local authority, should be extrapolated in order to assess the financial implications of the envisaged development for the future.

It has been found in practice, that graphic representations of the above financial forecasts are much easier for councillors and officials to understand. The author has furthermore experienced that once the implications of development have been expressed in the above graphical format, councillors are often quick to understand why it is necessary that realistic rates and tariffs should be phased in. The said graphical representation has also been found to be an effective medium to illustrate different scenario's of the effect of alternative adjustments in rates and tariffs.

8.3 OTHER FINANCIAL CONSIDERATIONS

8.3.1 Cost Recovery Options

Apart from grants and subsidies, there are six methods currently used for the recovery of costs associated with engineering infrastructure (DBSA internal report, October 1987), namely:

- upfront payments
- connection fees
- availability charge
- assessment charge
- basic tariff
- consumption tariff

Upfront payments and connection fees are generally utilised for capital cost recoveries, whereas the other four options can be used to recover capital costs, operating costs or both.

Another distinction between the first two methods and the others are that the first two are charged prior to the consumption or use of a service, whereas the other four methods are charged during consumption.

The capital cost of infrastructure can be included in the bond financing of individual homeowners through either upfront payments or connection fees. The advantages of these forms of cost recovery is that the long term debt is carried by the individual and not the public sector and secondly that private sources of finance are utilised and not public sector finance.

Another option would be to recover the capital portion of the infrastructure during the consumption or use of such infrastructure through the use of one of the last four cost recovery alternatives. This method requires the local authority to obtain long term finance and to recover its interest and redemption costs through the levying of regular charges over a period of time.

In addition, a tariff structure can be single or dual. A single tariff implies that a service is rendered on the basis of one charge per type of service. In a dual tariff, the capital costs (or part thereof) are recovered through a basic tariff, whereas the operating costs are recovered in relation to consumption.

It is thus evident from the above brief discussion that a number of combinations and permutations exist for the recovery of engineering services costs. The project manager should be familiar with these alternatives and should assist the local authority concerned in finding the most appropriate mechanism for a specific project and for the circumstances pertaining to the specific local authority. For instance, the effectiveness of the local authority will determine whether sophisticated cost recovery methods could be used or not.

8.3.2 Funding Options

The World Bank, as well as the Development Bank of Southern Africa believe that funds for infrastructure development should be lent to local authorities and not be given away without demanding consideration. Many other development agencies provide grants.

The author is of the opinion that it is only when infrastructure has to paid for (either partly or wholly), that priorities are really considered. It is only then when consideration is given to those projects that are critically required and that a distinction is drawn between projects that will generate income and those that will not. One of the methods which is not used extensively by individual black local authorities in SA, is that of a revolving municipal development fund. The idea is that such a fund should be started with own funds or with seed money from a development agency, and that the municipality should replenish the fund through charges to users or through increased taxes. While there is no doubt that a need exists for grants to the low income groups of the community, it is believed that development organisations such as the Regional Services Councils should channel a large portion of their funds into loans or revolving funds.

In selecting and preparing projects, local authorities often are getting a rare opportunity to set their own investment priorities. In doing so they will be more cost conscious and will be more committed to the upkeep and maintenance of these improvements, than the case is when decisions are made for them and when they have no financial commitment to the project.

However, the administration of such a revolving fund presupposes that the local authority should have a sound financial and administrative capacity.

8.3.3 Long Term Investment Plans

A city's long term investment plan is the first step in an effort to rationalise the selection of investment projects, setting overall investment priorities based on predetermined economic, technical, and financial criteria. While an overall investment plan is a major step forward, it still cannot tell the city whether the desired investments are financially feasible. For this task, a long term financial plan showing past and projected annual revenues and expenditures is required (refer to chapter 6). The plan should be long term, say five years, because the costs of financing large investments are only felt over a number of years and the benefits may only be realised long after the projects are complete.

8.4 CONCLUSIONS

Most of South Africa's black local authorities have a lack of financial expertise, and in addition, are technically bankrupt. Furthermore, the extent of the expansions to the black urban areas and the associated costs, are often so large that the impact on the financial position of the local authorities cannot be ignored.

Projects should be structured to take into account the above circumstances. It is also believed that project managers should concern themselves, not only with project financial matters, but also with the overall financial position of the local authority. Aspects such as maintenance and operation costs, pricing policies, and cost recovery mechanisms should also be considered to fall within the sphere of influence of the competent project manager. Other innovative financing alternatives such as revolving municipal funds, could also be considered.

Urban areas can only be optimally developed if projects are undertaken within the framework of long term investment and financing plans. The project manager should be willing and able to play a facilitating role in the drafting of such plans.

The issues and conclusions from the two case studies in chapters 4 and 5 have for discussion purposes been grouped into four categories. The previous two chapters explored socio-economic planning and urban managerial matters while this chapter is concerned with financial issues. The next chapter covers technical, environmental and project related matters.

CHAPTER 9

TECHNICAL, ENVIRONMENTAL AND PROJECT RELATED ISSUES

9.1 INTRODUCTION

From the case studies in chapters 4 and 5, it was concluded that developmental or peripheral issues are often the most critical issues in urban development projects. This chapter is concerned with technical or project related issues that are not necessarily the responsibility of civil engineers, but that should be taken into account by project managers who are responsible for the management of urban development in its widest sense. Many of the issues identified may even be outside the control of the project manager, however, these issues influence urban development projects, and managers who manage projects without considering the effect of these issues on their projects, will invariably not be optimally successful in their task.

The issues that are discussed in this chapter have been identified in practice by the author on urban development projects in which he has been involved in one way or another. The issues have been grouped under the headings of land for urban development, bulk services, housing, site and service schemes, social infrastructure, other developmental considerations, environmental issues and implications for the project manager.

9.2 LAND FOR URBAN DEVELOPMENT

The government's policy of leaving the task of black residential development largely to the private sector, coupled with the historic artificial shortages of land for housing development, resulted in a huge demand for land with a concomitant inflation in land prices. This is further aggrevated by spr ulation by the so-called land-sharks. For instance, with the announcement by the government on 5 December 1988 that the land to the west of Soweto was to be rezoned for black urban development, land prices virtually doubled overnight. At the time of writing this report, reports had been received of land selling at up to R40 000 per hectare, which translates into a land price of approximately R2 500 per stand. Add to this the holding cost, and it is clear that the effect on affordability, especially by the low income groups, is devastating.

The private sector has assembled considerable portions of land for urban development since this has become possible in September 1986 with the promulgation of the Black Communities Development Amendment Act. However, because the private sector operates exclusively in the conventional and starter home markets (refer to paragraph 9.4), and because of the high prices paid for this land, the land has effectively been excluded from housing development for the masses. Furthermore, where land is still being developed for the low income groups, market forces ensure that the higher income housing developments are addressed first. The resultant effect is that the land available for low income development is usually furthest from the urban centres. High transport costs and high costs of providing bulk services to these areas severely stress the limited resources of the poor families. By locating people at the periphery, their chances of successful integration into the economy are minimal.

The process for the establishment of black townships is regulated under the Black Communities Development Act. Numerous delays are however still experienced with the identification of land and the processing and approval of township applications by the relevant Provincial Authorities. This has the effect of further aggravating the situation through reinforcing the shortage of developable land.

Until such time as market forces have been allowed to bring land prices down to realistic levels, the above situation will prevail. The only alternative is for Government or town councils to acquire land ahead of time and then to involve the private sector with the construction of infrastructure and housing. The legal avenue for involving the private sector in this manner exists through the so-called land availability agreements, but the financial resources required by the local authorities for this purpose are the prohibiting factor.

9.3 BULK SERVICES

The provision of bulk services is a function of the relevant local authority and can only in isolated cases be provided by developers or other organisations in the private sector. The reasons being firstly that bulk services usually serve a number of residential areas and secondly that the cost of bulk services is normally recovered through municipal tariffs and rates over a long period (refer to paragraph 8.3.1). Recovery as a front-end cost would render stands too expensive.

Seen against the dire financial position of the black local authorities, and the potential impact of loans for bulk services at market related interest rates on the financial position of the authorities, they are generally unable to take up loans from the private sector for the provision of these services. The uneconomic rate structures of most local authorities (refer to chapter 8) furthermore contribute to rendering the financial feasibility of market related finance unfeasible.

These factors all contribute towards constraining the opening up of new areas already identified for development.

Bulk services for black urban development are currently only financed by government and semi-government organisations by means of loans to local authorities. The major organisations involved are the Local Authority Loan Fund, the National Housing Commission, the Regional Services Councils, the Development Bank of Southern Africa and occasionally, the SA Housing Trust in instances where no other source of finance is available, and often only on a temporary or bridging basis (refer to chapter 3 for additional information on the policies and approaches of these organisations).

The Local Authority Loan Fund provides loans at mar*. related interest rates and is as such confronted with the same problems regarding unaffordable and financially unfeasible projects described above. The NHC renders financial assistance at much lower interest rates. However, since the funds come from Central Government, this source is limited. The Regional Services Councils have up to now provided grants for bulk services and other infrastructural projects. While this source of finance will in future play an increasing important role, there is in many cases growing pressure from the existing population who demand that RSC funds should be used for upgrading projects, rather than for new developments. The DBSA provides finance for infrastructural projects at an interest rate of 10%, however, their involvement is being hampered by having to obtain approval from the SA government for providing finance on a project to project basis. This approval is cumbersome and DBSA's participation is occasionally refused.

It is thus evident that the provision of bulk services is often a major constraint in the opening of new development areas.

9.4 HOUSING

9.4.1 Affordability

Table 2 in chapter 2 provides the following breakdown with regard to general affordability levels in the black housing market on a country wide basis:

- the conventional home market of R35 000 and upwards caters for only the top 10% of the demand

- the starter home market of between R15 000 and R35 000 addresses 33% of the market

- the market for informal units costing between R3 500 and R15 000 captures 38% of the housing market

- 19% of the market will not be able to afford housing and must be accommodated in the private rental market

It is evident that the starter and informal home markets must become the most dominant form of housing. In addition, it has to be accepted that those in the bottom segment of the market cannot be accommodated in their own homes.

9.4.2 Attitude of Local Authorities

Many local authorities have the attitude that they will only accept residential and housing developments of a high standard and some have up to now prohibited developments with a low level of service. With reference to the above affordability levels it is evident that such an attitude is unrealistic and severely hampers development that will cater for the demand for housing for the black population at large.

9.4.3 Housing Finance

Private sector has up to now almost exclusively been involved in the top end of the market, mainly in the sector above

R30 000, which represents only approximately 13% of the market. At the time of writing, this market has in many urban areas almost been exhausted, whereas the lower segments have in many cases only been addressed to a limited extent (refer to paragraph 2.3.3). It is apparent that building societies view participation in the low segment of the market as not being part of their normal course of business and they seem to show increasing reluctance to even continue their present involvement.

The utility companies of the Urban Foundation which specialise in township development and the construction of houses have started to address the lower end of the market, albeit only on a limited scale. Up to now it is only the SAHT and the NHC that have provided funds for services and housing in the below R30 000 category. These organisations are government and semi-government organisations and in the light of the huge demand and backlog in housing, they cannot be expected to provide sufficient finance to solve the country's housing needs. Finance for the lower segments of the housing demand is thus totally inadequate and this poses a severe constraint on the urban development process.

The main reasons why the private sector is not addressing the low income segments of the housing market are three fold: (Urban Foundation, 1989).

Firstly, private sector finance for below R30 000 product price categories is just not available on any significant scale. While building societies pay lip-service to the housing needs, they in fact do not make finance available for this purpose. This can be attributed to the higher risk of financing the low income groups and the higher costs involved when small loans are administered.

Secondly, the provision of housing loans at highly subsidised interest rates by the NHC and the SAHT impede the provision of finance at market related rates to the low income groups. Take the case of two housing schemes that are being undertaken in the vicinity of each other at approximately the same level of service, but which are financed at significantly different interest rates. The chances are good that home owners who are paying the higher rates will become discontented with their financial obligations, will default on their payments and that they will blame the building societies for their predicament.

Thirdly, finance for alterations and additions to black home owners in the lower income groups are not available on a large scale. For instance, 33% of the demand for accommodation is in the starter home market. This means that incomplete houses with a low level of finish must be constructed and that these units must be upgraded when the owners can afford it. This concept is however negated through the non-availability of finance.

The problems related to the provision of housing finance cannot be ignored by project managers of large urban development projects as this would invariably lead to the inappropriate structuring of projects.

9.4.4 Site and Service Schemes

Finance for site and service schemes, that are urgently needed for the low income groups who cannot afford readily constructed dwellings are even more difficult to obtain. (Site and service schemes provide households with serviced sites on which they can build their own homes). This segment represents 38% of the market and is currently almost exclusively being catered for by the NHC.

Very few site and service schemes have been undertaken in

South Africa. In the author's opinion there are still many issues to be resolved before such schemes can be undertaken on a large scale. Legal constraints, building standards and bye-laws, finance, preferences and dislikes of the community are only a few. This is a major constraint in the house delivery system that needs urgent investigation.

It is evident however, that a large percentage of the population falls into this segment of the market mentioned above and should provision not be made to accommodate these people, uncontrolled squatting will be the result. Residential developments in this income group will have to be accepted as part of the urban set-up and much attention by project managers and other professionals will in future have to be directed at the problem of addressing the needs of these people.

The issues highlighted above have important implications for the structuring of urban development projects.

9.5 SOCIAL INFRASTRUCTURE

The emphasis up to now has been on the provision of housing for blacks. Social infrastructure has received little attention. In paragraph 2.3.4 it is said that the development of social infrastructure in South Africa's urban areas has fallen way behind demand. It is evident as one drives through the newly created urban black residential areas, that the construction of schools have not kept pace with the development of residential units. Through the author's involvement with urban dovelopment in the OFS Goldfields, it has become evident that the Department of Education and Training will not nearly be able to construct the number of schools necessary to meet the existing backlog. The situation is bound to deteriorate even further in future.

The backlog in schools is only a symptom of the lack of social infrastructure in the black urban areas, other social infrastructural elements such as health facilities are just as badly affected.

The basic problem is a lack of funds, especially for those social infrastructural elements of a seemingly lower priority.

Project managers responsible for the management of large urban development projects cannot disregard this issue. Although this matter is not easy to address, it cannot be ignored. It is often necessary to approach the problem in innovative ways. For instance, the privatisation of school construction is presently being considered by the authorities. The concept is that the private sector will undertake the erection of schools with own finance, and that the facilities will be leased back to the department. It is of prime importance that the project manager is proactive in pursuir~ these issues, for if he does not undertake this, the chanc , are that the provision of social infrastructure will lag far behind with serious consequences for the development of balanced cities.

Local authorities are often responsible for the provision of much of the social infrastructure for the area under their jurisdiction. However, they seldom have the financial means to provide in this need. It is thus a sound development principle to impose a levy on the development of stands by private developers. The levy can for instance be based on a differentiated charge per square metre that varies according to the selling price of stands. It is important however, that these monies be paid into an endowment fund that is utilised exclusively for this purpose. The fund should be subject to regular auditing to ensure that it is not used for any other purpose apart from the purpose for which it was created.

9.6 OTHER DEVELOPMENTAL CONSIDERATIONS

9.6.1 Rate of Development

Chapter 1 showed that there is a huge backlog in the provision of housing and other services for the black urban areas. Virtually all South Africa's urban areas have recently embarked on ambitious expansion programmes, often aiming to catch up with the backlog in a matter of two or three years. Experience over the last two years have shown that development invariably takes place at a much slower rate than what was originally hoped for. Figure 4 depicts the planned rate of house construction against the actual rate achieved in Thabong (refer to the case study in chapter 5).

Thabong houses mostly mine workers, employed by the goldmines in the area. The Anglo American Corporation is most active in this area and most of the gold mines belong to them. AAC has been very proactive in encouraging the development of Thabong. Not only have they provided active support to the Town Council in their development efforts, but they have not hesitated to use political and business influences at the highest levels to ensure that housing is provided at the maximum rate possible. Despite all this continuous effort, development has taken place at a rate considerably slower than what was hoped for.

This can be attributed to a combination of a number of reasons which fall outside the scope of this report. What is important however, is that this pattern appears to be repeating itself virtually without exception, throughout South Africa. It can furthermore be expected that the situation may even worsen with the current rise in interest rates, and the concomitant lowering of affordability levels.

This has serious financial consequences for the local authority who has not planned for such a scenario. Local authorities are generally responsible for the provision of bulk services to open up development areas. Should an authority install services in anticipation of development taking place at a certain rate, and should the development not materialise, the authority remains liable for the interest and capital repayments on investments that do not generate adequate income to warrant the capital outlay.

Project managers should plan for such a scenario by firstly applying scenario planning and testing through sensitivity analysis for the financial impact of low rates of development. Secondly, local authorities should structure their agreements with developers in such a manner that the risk to the local authority is minimised, ie developers should be tied down to a pre-determined rate of development and should be penalised if this rate is not achieved (refer to paragraph 9.6.2).

Thirdly, the project manager should be proactive in planning, monitoring and controlling the rate of construction in order to take preventative action should variances from plan be detected.

9.6.2 Agreements with Developers

Land availability agreements and/or services agreements between local authorities and private developers are regulated by the Black Communities Development Amendment Act of 1986. Lawyers have virtually standardised these documents. It is important, however, to note that the requirements of the law, as well as the way in which the agreements are mostly drafted by lawyers and approved by local authorities and the Provincial Administrations, do not necessarily protect the interests of the local authorities. In the author's experience, the legal professions are generally only concerned with the legal requirements of the agreements, with little regard being paid to project related risks and the financial implications to the local authorities.

Agreements can in general be regarded as the formalisation of the division of risks between contracting parties. Project managers should thus ensure that the interests of the local authorities that they represent, are protected, especially with regard to the rate of development, the payment of penalties to cover the local authority for expenditure incurred, as well as income forfeited, responsibilities for the installation of services and the standard of services to be installed.

It has been found that developers are often very eager to obtain land for development, but once land is allocated to them, they often do little to proceed with development until conditions suit them. This may take years. Project managers should be aware of this and should protect the local authorities against exploitation of this nature.

Where residential developments are undertaken by private developers, it has been found that the size of the development should generally be in the order of 50 to 100 erven, with a maximum of 300 erven, although the capabilities of the developer and the nature of the development will ultimately determine the appropriate size. It is recommended that agreements should be structured in such a manner that an incentive is provided to the developer if he performs well. For instance, a developer should rather be allocated a smaller number of erven with the understanding that an additional allocation will be made should his performance be satisfactory.

9.6.3 Phasing

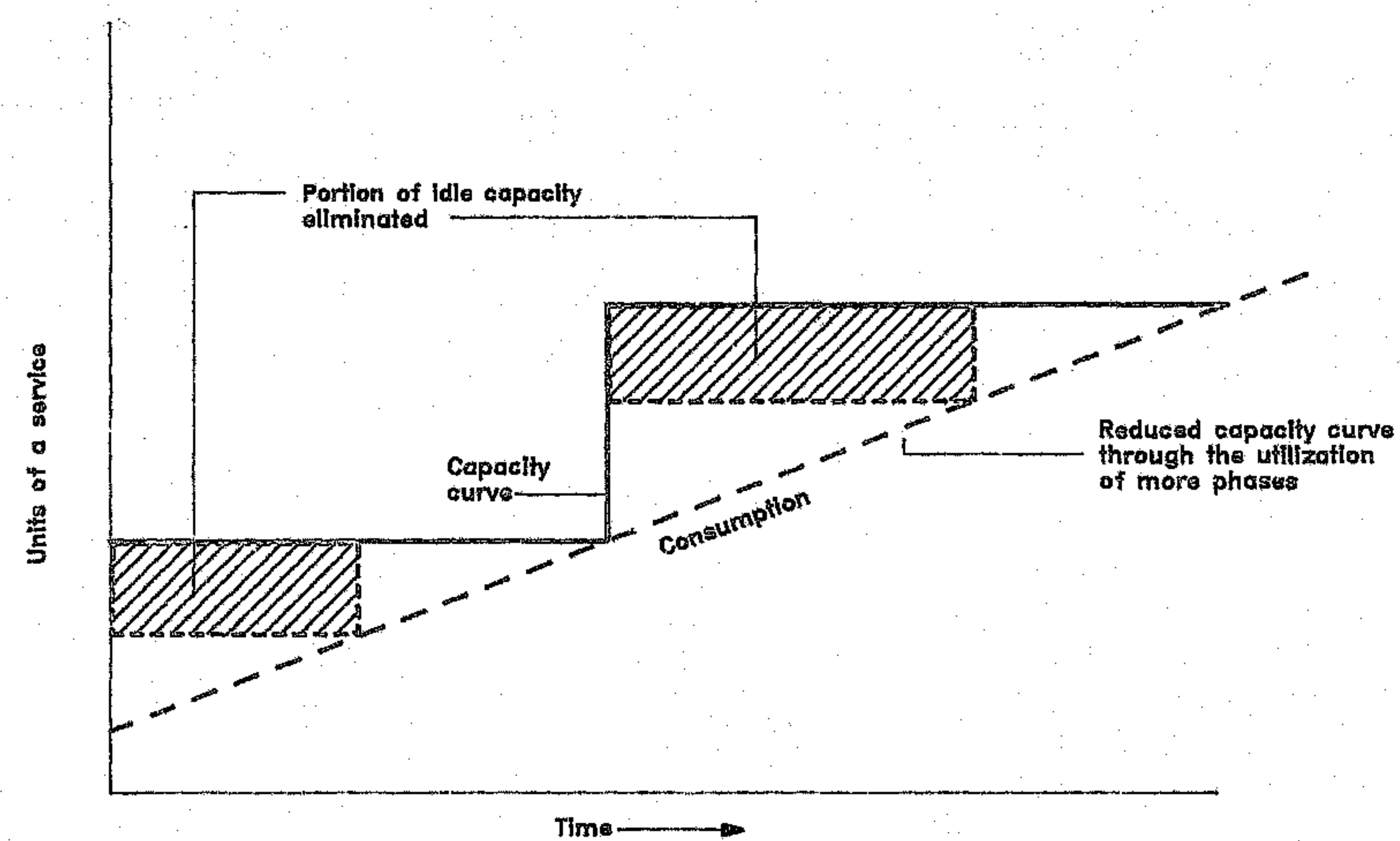
Phasing of development is considered to be one of the most appropriate means of minimising risks. In practice it has been found that urban development projects (both residential development and engineering services projects, especially bulk services projects) are generally undertaken in phases that are too large. Should the rate of development be slower than anticipated, large phases will generally magnify the problem. On the other hand, the risks associated with smaller phases are also smaller. The problem of phases that are too large has been reinforced by the author's experience on a number of projects and this point cannot be over-emphasised.

The capacity of bulk services can only be increased in finite steps (DBSA internal report, October 1987). This implies that there is spare capacity in a service supply system, unless the capacity exactly equals supply or an overloading situation occurs (refer to figure 7).

For private sector investments the most appropriate sequence of capacity expansion is the one that results in the lowest total present worth cost for the life of the facility. In public works, undertaken in the environment pertaining to black urban development, a case could possibly be made out for keeping present day costs as low as possible, even though this may result in an increased cost in terms of total present worth cost over the life of the facility. (DBSA internal report, October 1987).

Lower present day costs can be achieved by implementing smaller capacity increases more frequently. This implies that today's consumers will not pay for unused capacity that may only be taken up by future consumers. In addition, the financial risk associated with smaller capacity increases is also smaller. The electrification of Soweto is an example where too large a capacity has been provided at the outset. Although the project had been undertaken in the early 80's, the capacity of the system is not even today fully taken up. This means that the current users have been paying for capacity that they are not utilising.

FIGURE 7:
CAPACITY VERSUS CONSUMPTION



It is believed that the project manager could play and important role in encouraging a more appropriate approach towards the phasing of services, in the interest of a minimisation of risks and a lowering of present day costs to the end consumer.

9.7 ENVIRONMENTAL ISSUES

What has until recently been overlooked worldwide in technical assistance to developing countries by the aid-giving developed countries, is the impact of techno-economic development upon natural systems and the human environment. The benefits of development are too often cancelled by ecological and social disruption. Much of this disruption can be seen as irreversible if changes are not made immediately.

South Africa should learn from the experience of the rest of the world. In other developing countries it was found that due to an over-emphasis on economic development, nothing was done to preserve the quality of the environment. The environment was considered an aesthetic concern of the rich that poor countries could ill afford. The idea was that, having achieved economic growth, the attention could then be turned to the less pressing issues of protecting and reinstating environmental quality. Now environmental decay is generally recognised as a direct and mounting cost (Urban Edge, June 1989).

Very little work, if any, has been done in South Africa on the creation of urban areas for the low income groups with a concomitant objective of minimising the negative impact on the environment. From observations it is clear, however, that low income urban areas often have a considerable negative impact such as the pollution of streams, pollution of underground water resources, pollution of the air, as well as negative impacts caused by waste disposal dumps.

The author is thus of the opinion that an environmental impact assessment (EIA) should form part of the planning process and project managers should actively encourage the use of EIA's. The challenge is to manage EIA's such that a positive contribution to urban development is made in a cost effective manner.

9.8 IMPLICATIONS FOR THE PROJECT MANAGER

Within the context of urban development in the first world, project managers are mainly concerned with project goals and objectives that are easily definable. In this environment, project objectives mainly revolve around the three fundamental objectives of time, cost and quality. Furthermore, in this environment, project goals and objectives are usually given to the project manager and it is then his task to manage them. In the context of urban development projects in SA's developing areas, project objectives are seldom well defined (McCutcheon, 1980). Even when they are, they are more often than not defined sub-optimally. The project manager should thus be in a position to understand developmental considerations and be able to translate development considerations into appropriate project goals and objectives, taking inter alia the factors identified in this chapter into account when doing so.

In the author's experience the above approach requires considerable more input and effort into the preparation stage of projects than what is normally the case. Projects are often commenced without the necessary preparatory work having been done. Clients and engineers must accept that projects undertaken in a developing environment invariably take longer and require more input before actual design and construction can commence.

9.9 SUMMARY

The issues discussed in this chapter are of such a general nature that they are not always considered to be the responsibility of civil enigneers, but they nevertheless have a major influence on the success of urban development projects.

The scarcity of land for urban development and the relative high prices that have been paid by the private sector for land, mean that the low income groups have virtually been excluded from being accommodated on land owned by the private sector. The lack of bulk infrastructure for the opening of new land for urban development is an additional complicating issue that contributes to the scarcity of land and the concomitant unability of finding land suitable for the low income groups. Where such land is found, it is usually located on the periphery which has serious negative implications for the successful integration of the low income groups into urban economies.

Private sector has up to now only addressed the housing needs of the high income groups, that is for houses above R30 000, which represents the top 13% of the market. However, the biggest demand for housing lies in the market for R3 500 to R15 000 houses. Unfortunately this market is not being addressed by the private sector on any significant scale. The only two actors in this category is the National Housing Commission and the South African Housing Trust which are government and semi-government organisations who do not have the capacity to address the total demand for housing in this category. In addition, the attitude of many local authorities is such that they do not allow low income developments in the areas of their jurisdiction.

A large proportion of SA's black population can only be accommodated in site and service schemes and in starter homes. Finance for such schemes are however not readily available. The same applies to the availability of finance for additions to existing dwellings.

The above are some of the major constraints in the urban development process that have major implications for the management and structuring of projects and should be taken into account by project managers responsible for projects in this environment.

There is a general backlog in the provision of social infrastructure for the black urban areas. This is such an important element of the urban fabric that it requires special attention and innovative approaches by project managers who should, wherever possible, regard the provision of social infrastructure as part of their managerial responsibilities.

It has been found that the rate of residential development is often much slower than originally planned. The result is often a serious financial burden on the local authority. It is thus important that project managers involved in the planning of extensions to urban areas, should apply the basic principles of risk management in order to protect the interests of the local authorities.

Local authorities are often at the mercy of developers. The project manager can play an important role in ensuring that the local authority's interests are taken into consideration when agreements between local authorities and developers are drafted. Risk assessment and the adequate protection of the local authority against unforeseen circumstances are important considerations when such agreements are drafted.

It is believed that the optimum phasing of services as part of a risk management and cost reduction strategy, is an important avenue that is often under-utilised in urban development projects. In the author's experience, urban development projects are mostly undertaken in too large phases which implies that an unnecessary financial burden is placed on communities for services capacities that are under-utilised for an unnecessarily long initial period.

The environmental impact of urban development, especially for the low income groups, has almost been totally neglected up to now. Experience in other countries has indicated that environmental neglect generally becomes a direct future cost to urban authorities. The issue of the environmental impact of urban development can no longer be ignored in South Africa.

The project manager should address these, and other issues referred to in this report, either through the appropriate structuring of projects i.e. by employing projects as vehicles for reaching developmental objectives or through the direct involvement in developmental matters. It is furthermore believed that the formulation of appropriate goals and objectives are critical for the success of any project undertaken in this environment.

The issues covered in this chapter are, in the author's experience, some of the most important technical, environmental and project related issues that are generally found in urban development projects and that have an important influence on the success of such projects. It is believed that project managers involved in urban development projects and in the urban development process, should be aware of these issues and should actively plan, manage and structure projects to limit the negative influence of these issues on the financial, and the general success of their projects.

CHAPTER 10

SUMMARY AND CONCLUSIONS

The objectives of this report as stated in the introductory chapter were two-fold: firstly, to provide an overview of aspects that are considered relevant to an understanding of the urbanisation process, and secondly, to identify and review the most critical factors affecting large urban development projects. These aspects are summarized in paragraph 10.1.

However, the problems identified during the investigation, especially those manifested by the case studies, have far reaching implications for the civil engineer involved in urbanisation. The second part of this chapter thus contains some conclusions on how these factors impinge on the role of the civil engineer who is responsible for the management of urban development projects.

10.1 CRITICAL ISSUES

Chapter 2 was concerned with providing an overview of some important socio-economic considerations pertaining to black urbanisation. It was concluded that the developing urban areas would probably in future be increasingly characterised by:

- a fast growing urban population, especially in the metropolitan areas

- a significant increase in unemployment among both skilled and unskilled labour

- an increase in poverty

- large backlogs in both housing (especially for the lowest income groups) and social infrastructure.

Chapter 2 furthermore suggested that the term "development" should, in the context of black urban development, always include social and economic factors in addition to physical development considerations. This implies that engineers must understand, and take into consideration, the broader development issues in the structuring of projects. This was borne out in chapters 4 and 5 where it was shown how a too narrow approach to development projects could ultimately lead to sub-optimal projects or even project failure.

Chapter 3 contained a brief overview of the policies and approaches of some organisations involved in development. It concluded that the socio-economic conditions, the current political empowerment of the masses, and the emergence of inexperienced clients with a new approach to development, dictated a shift away from first world type projects to projects undertaken with due consideration of the realities of the situation.

The overriding conclusion from the case studies in chapters 4 and 5 was that, while technical aspects were generally well addressed by civil engineers, projects in the developing urban areas were often jeopardised by issues that had traditionally been considered to be on the periphery of development and outside the scope of the civil engineer's responsibilities. Taking into account the comparatively high level of technical expertise among civil engineers, there was a far higher risk of money being squandered through the wrong approach to development projects, than through technological error. The case studies identified a number of aspects that should be taken into account in the structuring of large urban development projects. The issues identified were grouped as follows:

- socio-economic / development planning matters

- urban managerial considerations

- urban financial issues

- technical, environmental and project related issues.

These aspects were explored in more detail in chapters 6 to 9 where practical approaches for overcoming the issues identified, have been suggested.

South Africa's urban areas have in the past been developed as dormitory towns. This, coupled with the current emphasis on physical development, created the danger that urban areas could continue to develop into unbalanced entities. Chapter 6 therefore suggested practical approaches for the undertaking of socio-economic / development planning in order to provide an all encompassing framework for the development of black towns and cities. It was concluded that engineering projects should be structured in support of the overall goals and objectives emanating from development plans and should not be undertaken on an ad hoc basis as was so often the case in the past.

The most common request from local authorities is for physical projects; the approach adopted by engineers and others, is usually an emphasis on the provision of hardware. However, in South Africa's developing urban areas the legitimacy of black local authorities and the capacity of local authorities to manage their own affairs, are by far the most important factors constraining development. These statements were substantiated in the two case studies in chapters 4 and 5 of this report and the subject was further explored in chapter 7 where practical approaches to, inter alia, the following matters were suggested:

- the strengthening of local authorities through development projects

- community participation

- considerations pertaining to the maintenance and operation of infrastructure

- privatisation of local authority functions.

Chapter 8 concluded that South Africa's black local authorities were in a dire financial position and almost all of them were technically bankrupt. Furthermore, the extent of the expansions to the black urban areas and the associated costs, were often so large that the impact on the financial position of the local authorities could not be ignored. Engineering projects should therefore be structured to take account of this. In addition, the following must also be considered:

- maintenance and operation costs of infrastructural facilities

- cost recovery mechanisms

- innovative financing alternatives

- the drafting of long term investment and financing plans.

Whereas engineers tend to focus on the technical content, and project managers on the traditional time, cost and quality objectives of projects, it has been found that in addition to a lack of managerial expertise and the dire financial position of local authorities, the most critical issues determining the ultimate success of projects, are in fact factors which have not usually been central to engineers' technical concerns, such as:

- the non-availability of land that is affordable by the low income groups

- the non-availability of affordable bulk infrastructure

- the non-availability of bond finance for the bottom 85% of the housing market

- the negative attitude of local authorities towards development at a low level of service, which can largely be ascribed to inexperience and a lack of managerial capacity and insight into development problems and local authority financial considerations

- the inability of the private sector and public sector alike to undertake site and service schemes to meet the needs of a large portion of the market

- the lack of finance for social infrastructure

- an overestimation in the rate of development and a concomitant inappropriate phasing of bulk services provision

- inappropriate agreements between local authorities and private sector developers

- environmental considerations.

These matters have been described in chapter 9. The two case studies substantiated that, if projects were to be optimally successful, the above aspects must be taken into account in the structuring of all large urban expansion projects.

10.2 IMPLICATIONS FOR THE CIVIL ENGINEER AS PROJECT MANAGER

It was not an objective of this investigation to explore the implications for the engineer in great depth. It is thus recommended that the issues identified below should be investigated further, possibly through further theses or investigational projects.

The civil engineer as project manager who is involved with large scale projects in South Africa's developing urban communities and who is interested in the long term overall success of his projects, must in addition to technical matters, focus his attention on issues that would, in the context of the developed sector of our community, be considered as falling outside his sphere of influence. He should furthermore take into account the fact that civil engineering projects are only an element of urban development and that projects do not stand in isolation but are undertaken in support of a comprehensive development process.

What is at stake in South Africa's developing urban areas is the creation of balanced cities, and as cities are complex entities, all contributing elements should be addressed equally. Apart from the management of individual projects, project managers should thus be focussing on the process of managing urban growth, thereby addressing, amongst other matters, the critical issues identified in this report. In this context it is necessary that engineers should be able to perform a managerial role in this multidisciplinary planning process.

Project managers should understand how projects fit into the development process and how projects could be structured to act as vehicles for development. In addition to aspiring to complete projects that are technically sound, engineers should aim to create projects that will contribute maximally to development. Projects that are incorrectly structured could lead to the squandering of more money (in economic terms) than projects that are technically sub-optimal (Wall, 1988). This implies that projects should be seen within a development context and that goals and objectives should be compatible with, and in support of overall development goals and objectives.

In contrast to first world projects where project goals and objectives are handed down to the project manager, project managers active in a developing environment, more often than not, have to set their own goals and objectives (McCutcheon, 1980). It is believed that properly defined goals and objectives are the key to optimally structured projects. Such an approach necessitates considerable input at the project preparation stage and it should be accepted by promoters, clients and professionals alike, that the preparation stage of projects requires considerably more time and energy from a multi-disciplinary planning team, than what is currently the norm.

In spite of what has been said above, engineers' traditional responsibility for creating projects that are technically sound, should in no way be belittled. This must always be a prime responsibility for any engineer. However, project managers who limit their involvement to this dimension alone, will not be optimally successful in their task. It is of the utmost importance that the project manager should concern himself with the wider development issues and with development policy formulation.

In the context of South Africa's developing urban areas it is not sufficient for civil engineers to be project managers in the traditional sense of the word, but rather development managers.

The above requires an engineer with specific interests and someone who has had appropriate training and re-orientation. Training and re-orientation are regarded essential as many engineers involved in urban development do not fully appreciate the effect of changing circumstances on their role. Wall (1990) confirmed this view when he said: "... many constructional professionals do not understand or even profess to wish to understand the non-technical context of their professional work."

It is therefore recommended that:

- the aspects identified in this report be brought into the curricula of engineering education

- the aspects identified be disseminated to practicing engineers through seminars and courses. The objective should be that consideration of these issues be the concern of all consulting firms, project management companies, clients and contractors who are engaged on large infrastructure projects in the developing urban areas.

It is recommended that the civil engineering profession, and specifically the project management discipline, should give urgent attention to alternative strategies for addressing this all important matter. For if engineers do not rise to the challenge of adequately addressing development needs, the void is bound to be filled by another discipline. This would result in engineers not taking the opportunity to provide the leading role which they could play in urban development by virtue of their critical role in the provision of the infrastructure for a rapidly urbanising society.

REFERENCES

Abbott, J. (1988). Personal interview with Mr J Abbott. June 1988.

Abbott, J. and Swilling, M. (1986). The role of the public sector, social issues and community participation. Address at a course on project management at the University of the Witwatersrand held from 7 to 11 July 1986.

Bastani, H. (1986). Issues in the management of projects in developing urban areas. Address at a course on project management at the University of the Witwatersrand held from 7 to 11 July 1986.

Bastani, H. (1988). Issues in the management of construction projects in developing areas. Technical paper in the Civil Engineer in South Africa, February 1988.

Bendavid-Val, A. (1980). Local economic development planning: From goals to projects. September 1980. American Planning Advisory Service Report number 353.

Berkhout, S.J. (1988). Education in SA. Prodder's Development Annual 1988. Programme for development research, HSRC Pretoria.

Bernstein, A. (1986). The abolition of influx control and the development of a new urbanisation strategy. Address delivered to the manufacturing strategy convention on 11 March 1986.

Bleibaum, U. (1988). Technical Problems. A paper presented to a seminar on housing infrastructure for developing communities on 6 and 7 September 1988 at the University of the Witwatersrand.

Botha, W. (1987). An investigation into township development potential south of Mangaung : a local structure plan, Wim Botha Town Planners, June 1987, Bloemfontein.

Brand, S. (1987). Future Scenario's. Article in Finance Week, November 19 - 25, 1987.

Brand, S. (1988). Engineering and the challenge of development. An article in Engineering, No. 174, February 1987.

Business Day. (25 November 1986). Study: SA house shortfall far exceeds Govt estimates.

DBSA. (1989a). Draft frameworks for an urban development plan and an urban appraisal / assessment. Development Bank of Southern Africa internal document. 16 July 1989, Midrand.

DBSA. (1989b). Internal document on community participation prepared by the Central Specialist Unit. Development Bank of Southern Africa, 1989, Midrand.

DBSA internal report. (October 1987). The formulation of tarifx policies to recover infrastructure costs in local authorities.

De Gasparis, P. (1989). Personal discussion with Dr de Gasparis, a specialist in community participation at DBSA. July 1989.

De Kock, G. (23 April 1989). Hoër investering word 'n probleem. Article in Die Rapport.

De Lange, J.P. (1988). SA Population is set to explode. A paper delivered to the National Association of Home Builders (March 1988), CSIR, Pretoria.

Duys, G.R. (1989). Introductory letter from Blomanda's chief executive officer to various organisations. Bloemfontein, 1988/89.

Engelbrecht, W.G. and Venter, A. (1983). Some effects on the South African economy of alternative strategies for dealing with black urbanisation. Paper delivered at the Economic Society Conference , 15-20 September 1983. Johannesburg.

Engineering. (June 1988). A profession in crisis.

Finance Week. (April 14 - 20, 1988). Seven new Sowetos.

Financial Mail. (2 October 1987). Low Cost Housing, The Quest for Solutions.

Finansies en Tegniek. (20 May 1988). Swart stedelinge het groot koopkrag.

Finansies en Tegniek. (7 April 1989). Soweto se afskryf van skuld nie gemagtig.

Finansies en Tegniek. (21 April 1989). Twintig swart dorpe sonder skole.

Garzia-Bouza, J.A. (1980). Basic needs analytical bibliography. Development Centre, OECD, Paris.

Headway. (February 1987). A newsletter of the DBSA.

Ligthelm, A.A. and Kritzinger-van Niekerk, L. (1990). Unemployment : The role of the public sector in increasing the labour absorbtion capacity of the South African economy. Development Southern Africa, Vol. 7, No. 4, November 1990.

Lombard, J. (1988). Housing finance and the national economic scenario. Paper for a keynote address at a conference on "Finance, the Pathway to Housing" held on 2nd June 1988 at the CSIR, Pretoria.

Lombard J.A. (Engineering, August 1987). Address at the award function of the free market foundation.

Malan, N. (August 1989). Personal discussion with the ex-town clerk of Soweto.

Mallows, W.M. (1988). Urbanisation has now reached a point of no return. Paper delivered at the Nola Green memorial lecture at the University of the Witwatersrand.

Meintjies, C.J. and Spannenberg, J.P. (1988). A statistical picture. Prodder's Development Annual 1988. Programme for development research, HSRC Pretoria.

McCutcheon, R.T. (1980). Social and environmental factors in a labour-intensive roadbuilding programme, Iran. Habitat International, Vol. 5, No. 3/4, pp. 361 - 393, 1980.

Pillay, P.N. (1984). Poverty in the PWV area : A Survey of Research. Carnegie Conference Paper No 18. Saldru, University of Cape Town.

President's Council report on a strategy for employment creation. (1987).

Pretoria News. (4 April 1989). Authorities urged to put up fees.

Regional Services Councils Act, Act 109 of 1985.

Simkins, C. (1981). The economic implications of African re-settlement. Saldru Working Paper No 43. Saldru, University of Cape Town.

South African Housing Trust Annual Report. (1988). [illegible]

Squire, L. and van der Tak, H.G. (1981) Economic analysis of projects (fourth edition). A World Bank Research Publication. John Hopkins University Press.

Streeten, P. (September 1980). From Growth to Basic Needs. Poverty and basic needs. World Bank, Washington DC.

Sunday Times. (6 December 1987). The Million Rand Backlog.

Sunter, C. (1987). The world and South Africa in the 1990's. Human & Rossouw and Tafelberg, Cape Town.

Todaro, M.P. (19[illegible] Economic development in the third world. Longman, New York.

Thompson, A.M. and Coetzee, S.F. (1987). Urbanisation and urban Growth in the SATBVC states. Research report no 7, Institute for development research, Development Bank of Southern Africa.

Tomlinson, R. (1990). Urbanisation in a post-apartheid South Africa.

The Urban Edge, issues and innovations. (Various issues). World Bank, Washington DC.

Urban-Econ. (1988). The housing market and related aspects of the proposed town Meriting. Urban-Econ, land use economists, November 1988, Pretoria.

Urban Foundation, (1989). Presentation to the Housing Advisory Council. 15 February 1989.

Urban Foundation Annual Report. (1988). Johannesburg

Urban Foundation, (1990a). Policies for a new urban future, Series 1, Population trends.

Urban Foundation, (1990b). Policies for a new urban future, Series 9, Housing for all : Proposal for a national urban housing policy.

Urban Foundation, (1990c). Policies for a new urban future, Series 2, Policy overview : The urban challenge.

Vallun Wilkins Associates. (1986). Major implications of the revised legislation affecting black urban areas. Rivonia, SA.

Van Der Kooy, R.J.W. (1988) . A development perspective of South Africa. Prodder's development annual 1988. Programme for development research, HSRC Pretoria.

Viljoen, P.S. (July 1986). Greater Soweto planning project, civil services upgrading project. A paper delivered at a course on "Planning & Implementing the Infrastructure in Developing Areas" held from 7 to 11 July 1986 at the University of the Witwatersrand.

Viljoen, P.S. (1990). An approach and appropriate development options for the development of low cost township services. An address delivered at a conference on urbanisation held on 10 December 1990 at East London.

Visagie, J. (1988). Personal interview with the manager of the Gencor Development Trust during May 1988.

Wall, K.W. (1988). Learning to lead the urbanisation opportunity. A paper presented to a conference on "Housing Infrastructure for Developing Countries" held on 6 September 1988 at the University of the Witwatersrand.

Wall, K.W. (1990). Urban engineering in a changing society. Urban Forum 1990. Witwatersrand University Press.

Webber, M.M. (1985). How cities are changing: A world view. A paper presented to the conference on coping with city problems, Johannesburg Central Business District Association, February 1985.

White Paper on Urbanisation. (June 1986). A summary of the white paper on urbanisation released by the Directorate: Liaison Services of the Department of Constitutional Development and Planning. Pretoria.

Wilson, F. and Ramphele, M. (1989). Uprooting poverty : The South African challenge. David Philip, Cape Town.

World Bank. (1984). World Development Report. Oxfort University Press , New York.

Zybrands, W. (1989). Institutional and financial assessment of Mangaung local authority. Werner Zybrands local authority consultant, April 1989, Roodepoort.