

Low Income Housing Project: Case Study – Burnwood Road Project

Sibongile Mathombi Zwane

Project Manager,
Durban Metropolitan Council – Metro Housing,
South Africa

Summary

The project that I will discuss intend to look at low income project within the inner city in line with the integrated development planning which is the crucial element of the new housing policy. Integrated development programmes are seen as a means to achieve integration of our cities and a move away from segregated developmental approach methods.

Therefore the paper will discuss the planning, construction processes, level of stakeholders participation and detailed issues that unfolded during the project life span. The project that the writer will use as the case study is Burnwood Project, which is partly in situ, and partly greenfield.

The paper demonstrates and supports the view that both low income and middle income people can benefit from each other if brought together. Solving the housing crisis is not just a matter of getting all the technocrats to agree on how many houses are needed, how many are being built, and getting the politicians to agree on the way in which those houses should be built and for whom. It must all happen together.

This requires those representing the homeless and the inadequately housed (mass based organisation), and those who represent suppliers of housing and housing finance (business, banks etc.) to talk with each other, and with those who regulate the housing sector, in order to agree to a way forward which is both practically achievable and politically acceptable.

Introduction

At this exciting stage of our country's history there is a great promise that, for once sizeable portion of our hard earned taxes would be spent on correcting inequalities and not creating them, as has been the case for most of the modern South African, if not African history. This promise of equality is especially important to the initiators of development, as the 'great promise' could also cause grave concern when one analyses the processes,

regulations and attitudes in place within the overall context of development.

In South Africa we created (and some of us inherited) cities where the forced separation of communities have emphasised the inequalities of life to an unacceptable extent. The under-privileged is expecting, as a result of political rhetoric, to attain a quality of environment that internationally, is in the grasp of only a privileged few. This situation is exacerbated by the fact that the developmental models in the mind's eye are totally unrealistic. The reality of the urban environments that we need to create to achieve our cities looks very different.

And now, in an act of overcompensation, we are running to all the known Developing Cities, especially those in South America, to find quick fix solutions to the dilemma we created for ourselves. Perhaps we should be a little calmer and a bit more confident and attempt a simplified analysis of the South African City. Only then should we look to precedent as guide to what could be achieved within our context.

As already indicated that the paper focuses on the low income housing in South Africa. This takes place within a particular context in terms of the rapid changes that have taken place within our country. Therefore it is necessary for the writer to a certain extent, elaborate on the existing situation as it informs and influence the project.

Problem Statement

The planning of most of low income projects are based on the grant that is offered by the government. As a result it is the available amount that determine the project. The money had been the same from 1995 up to now yet our currency is becoming weaker and weaker.

There had been serious complains about the quality of the product and cast doubt on the sustainability of such houses. This has prompted the National Minister of Housing to declare more than half of the 600 000 houses built for the poor since 1994 as "substandard". This was prompted by the collapse of 43 houses in a storm in December, two months after completion.

There has been outcry from the beneficiaries that the houses are too small and can hardly accommodate or meet the needs of families. Such houses have been accepted with resentment.

Suitable property management is not catered for at all in such public schemes and this can have long-term effect as people do not have proper management skills.

In Burnwood Road Project, the total number of people in the informal settlement were 165 yet the project could only cater for 89 sites and that created problems during allocation period.

Objectives of the Paper

1. Describe the processes that take in place within the project from planning to completion.
2. Analyse the project and learn from it for future project
3. Form base for discussion within local authorities and where possible initiate necessary changes.
4. Sharing experiences with other course participants and welcomes their input.

Structure of the Paper

The writer has chosen Burnwood Road Project as the case study. Burnwood Project has been completed recently and all issues are still fresh. This is also one of the few project that are located within the city providing rare opportunity of:

- Racial integration
- Income integration
- Integrated development planning
- Bulk infrastructure existence
- Existence of community facilities (schools etc)

The paper will be structured as follows:

- Housing Perspective within South African situation: The writer will give a detailed overview of the situation
- Burnwood Project will be discussed taking into consideration the following stages:
 - Design
 - Production
 - Property management
- Summary of problems discussed in different stages
- Possible Solution
- Conclusion

Housing Perspective: South African Situation

Economic Growth

Growth in the Gross Domestic Product (GDP) has shown a cyclical decline over the past three decades, with the average annual growth rate of the GDP falling below the annual population growth rate. This has resulted in a decrease in real per capita income.

The Distribution of Income

In South Africa, the effect of previous racially based policies has left the distribution of income substantially skewed, prompting powerful arguments in favour of economic redistribution. The trend towards equalisation needs to be accelerated.

An increase income to lower income groups could have major impact on the housing sector by converting latent demand for housing into effective demand.

Evidence indicates that while low-income groups have more restricted savings capacity than higher income groups, their savings are more directly targeted towards specific needs, such as education and housing.

Employment

South Africa is characterised by large-scale unemployment in the formal sector of the economy. The increasing growth rate of the economically active population in conjunction with a declining or stagnant rate of growth GDP implies that the level of unemployment is set to increase still further. The high level of unemployment, coupled with the declining levels of per capital GDP, has a negative effect on demand for and investment in housing diminishes Government's resource ability to assist the poor and unemployed. A solution to this problem is fundamental to a sustainable solution for the housing problem.

At the same time, it is equally apparent that the housing sector has a potentially enormous role to play in the revitalisation of the South African economy. This point is underlined by the very high direct and indirect economic multiplier effect of housing production. In this regard, the closest possible linkage between the housing and electrification programmes should be sought as one of the primary approaches to satisfying basic needs as well as providing a sound basis for job creation and economic sustainability.

In summary, in order to increase the level of housing investment it is first necessary to increase the level of personal saving, by increasing the level of disposable income, and secondly, to redirect savings towards mortgage lending institutions.

The Fiscal Deficit

In recent years the fiscal deficit has grown rapidly, despite government efforts to maintain the deficit at around 3% of GDP, in keeping with International Monetary Fund (IMF) guidelines. The current size of the deficit (8% of GDP) places serious constraints on economic development.

The greatly expanded housing delivery programme to meet the Reconstruction and Development Programme target of 1000 000 houses in five years, will necessitate substantially increased fiscal spending on housing. The currently accepted five year targets cannot be achieved on the current housing allocation within the national budget.

Demographic Profile of South Africa (1995)

South Africa has a rapidly increasing and urbanising society but population growth will result in a numerically

stable rural population. Coupled to this is a large existing and increasing housing backlog, due to very low rates of formal housing provision.

Population Size and Population Growth Rate (1995)

South Africa's population is projected to be almost 42.8 million in 1995. The projected average annual growth rate of 2.27% per annum between 1995 and 2000 will increase the total population to approximately 47.4 million by year 2000. This implies an average increase of approximately one million people per annum over this period.

Urbanisation Rate

It is estimated that over 28.0 million (66%) of South Africa's population are functionally urbanised. This implies that approximately 14.5 million people (34% of the total population) reside in rural areas, many of whom will spend part of their working lives in the urban areas.

Income Profiles

The low incomes earned by many South Africans are a major consideration in the formulation for future housing strategy. Table 1 outlines the proportion of households falling into certain income categories.

TABLE 1

No	Income Category	Percentage	Number of Household
1	R0 – R800	39.7%	3.30 m
2	R800 – R1500	29.0%	2.41 m
3	R1500 – R2500	11.8%	0.98 m
4	R2500 – R3500	5.6%	0.46 m
5	R3500 →	13.9%	1.15 m
TOTAL		100%	8.3 m

Please note that R 6.00 = 1 US dollar (\$ 1)

Living Conditions, Existing Housing Stock and Rate of Supply

A relatively small formal housing stock, low and progressively decreasing rates of formal and informal housing delivery in South Africa have resulted in a massive increase in the number of households forced to seek accommodation in informal settlements, backyard shacks and in overcrowded conditions in existing formal housing.

Urban Informal Housing

Approximately 1.5 million urban informal housing units exist in South Africa at present. These include around 620000 serviced sites delivered by the old Provincial Authorities and through the Independent Development Trust (IDT) Capital Subsidy Programme.

Delivery of serviced sites through the IDT's Capital Subsidy Scheme and by the four old Provincial Authorities is estimated to have reached levels in excess of 120 000 per annum over the last three years.

Squatter Housing

Approximately 13.5% of all households (1.06 million) live in squatter housing nation-wide, mostly in free

standing squatter settlements on the periphery of cities and towns and in the back yards of formal houses.

Low rates of formal housing delivery coupled with high rates of new household formation have resulted in a massive growth in the number of people housed in squatter housing.

This form of housing remains the prevalent means through which urban households are accessing shelter in South Africa at present. It is estimated that approximately 150 000 new households per annum house themselves in this way. The recent rapid increase in the number of land invasions is a further indication of this. In the short term particularly, policy responses from all tiers of Government will have to be pro-actively responsible to this fact.

Access to Basic Services

Many people in South Africa do not have access to basic services, such as potable water, sanitation systems and electricity. Furthermore, many neighbourhoods are inadequately supplied with social and cultural amenities.

- Water supply
Approximately one quarter of all functionally urban households in South Africa did not have access to a piped potable water supply.
- Sanitation
An estimated 48% of all households do not have access to flush toilets or ventilated improved pit latrines, whilst 16% of all households have no access to any type of sanitation system. An estimated 85% of rural household have some form of sanitation system whereas an estimated 49% of farm workers depend on the veld for this purpose.
- Electricity
It is estimated that 46.5% of all households are not linked to the electricity supply grid in South Africa.

Existing Housing Conditions in South Africa

It is estimated that the urban housing backlog in 1995 was about 1.5 million units. The consequences of this backlog are physical reflected in overcrowding, squatter settlements and increasing land invasions in urban areas, and generally by the poor access to services in rural areas. Socially and politically, this backlog gives daily impetus to individual and communal insecurity and frustration, and contributes significantly to the high levels of criminality and instability prevalent in many communities in South Africa.

Due to the high rates of population growth and low rates of housing provision, it is estimated that the housing backlog is presently increasing at a rate of around 178 000 units per annum.

Conditions of tenure

Many South Africans did not have adequate security over their homes:

- Approximately 58% of all households (4.8 million household) have no secure tenure over their accommodation; whereas
- an estimated 9% of all households(780 000 household) live under traditional informal/inferior and/or officially unrecognised tenure arrangements in predominantly rural areas; and
- An additional estimated 18% of all households (1.5 million households or 7.4 million people) are forced to live in squatter settlements, backyard shacks or in over-crowded conditions in existing formal housing in urban areas, with no formal tenure rights over their accommodation.

This pattern of insecure tenure is undoubtedly one of the salient features and causes of the housing crisis in South Africa.

Land and Planning Issues

The historical and existing patterns of land use and allocation, as well as the legislative and policy framework associated with land, provides an immense challenge and constraint. A different approach to land use not only promises the possibility of social cohesion, but can also have dramatic and beneficial impact on costs and the efficiency of other resource utilisation such as energy and water.

The inability and unwillingness to release sufficient suitable land and housing continues to be a constraint to timeous housing delivery:

- Lack of coherent policy on land: no clear outline of responsibilities for the identification, assembly, planning and release of land for low-income housing exists, and inconsistent positions exist between different government departments and tiers of government;
- Land identification: previous racial zoning practices, reluctance of certain authorities to accept responsibility for low income housing, resistance of many existing communities and various legislative constraints have impeded the identification of sufficient, suitable land for low-income housing;
- Constraints to land assembly: due to legislative controls and the fact that land was previously assembled according to ability to pay rather than need, insufficient land has been assembled for low income housing,
- Land invasion: increases in informal land invasion hamper efforts to timeously release adequate, suitable land for human settlement in a planned manner, and may result in certain people attempting to jump the housing subsidy queue.

Sociological Issues

- ◆ High expectations
- ◆ Crime and violence
- ◆ Lack of consumer protection
- ◆ Poor consumer education
- ◆ Perceptions of housing
- ◆ Non payment
- ◆ Special needs housing

- ◆ Circular migration and dual households
- ◆ Hostel accommodation
- ◆ Traditional tenure systems
- ◆ Legal impediments to access for women to housing

NB: After the 1994 democratic election, the Government had to put in place policies and laws that will address all the issues that I have discussed above. As a result we now have a new housing policy and the Development Facilitation Act (DFA) that deals with land tenure issues.

Burnwood Road Project

Initiation of the Project

In February 1996 the Housing Department of the then Community Services Directorate of the Central Transitional Metropolitan Substructure Council now the Durban Metropolitan Housing Department, resolved to upgrade the informal settlement known as Burnwood Road and situated on Portion of 301 Springfield.

In this project, the writer is involved on behalf of the Metro Housing as the Project Manager as part of North Central Local Authority.

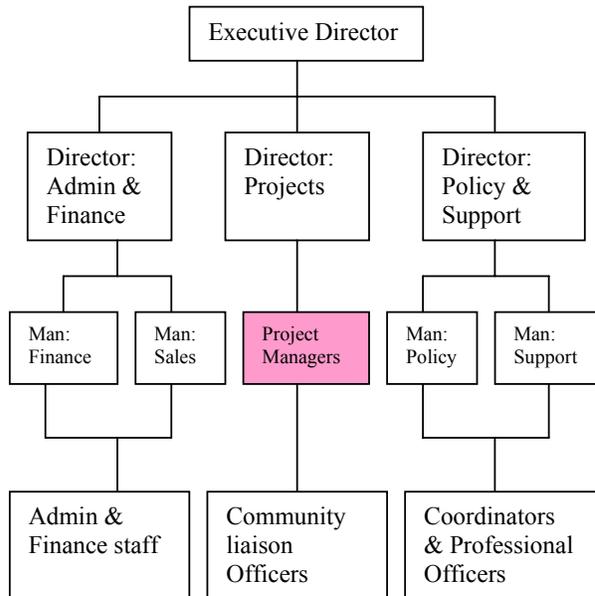
Metro Housing involvement began from the identification stage until the time when the sites are handed over to individual owners (i.e. completion stage). Metro Housing does not play any role in the property management it is up to the owner to take care of his/her house.

The writer as the Project Manager, is involved in the running of the project from inception to completion ensuring the following:

- Minimization of risks factors
- Control of budget and cash flow
- Processing of the necessary payments
- Employment of consultants
- Setting of monthly meetings with all stakeholders
- Ensuring smooth running of projects
- Report back meetings to relevant bodies
- Report writing regard status of the project and seeking
- Necessary approvals
- Internal link
- Project planning and scheduling

Below is the organisational structure for Metro Housing.

Metro Housing Organisational Structure



Locality and Property Description

The Burnwood Road settlement (also referred to as the Candover Road Settlement) is located on Portion of 301 Springfield. The land is located in Clare Estate adjacent to the King George V Hospital and the residential neighbourhood established around Burnwood and Candover Roads.

The site is well located, within and well linked to the central parts of Durban and is adjacent to a number of established city neighbourhoods (Sparks, Sydenham, Overport, Clare Hills with facilities and amenities which would adequately support new residents. In turn the development would provide additional support and thresholds for existing and new facilities.

The existing informal settlement is approximately 3-4 years old and accommodates approximately 165 low-income families. Dwellings are all shacks built from a wide range of cheap and second hand materials and or any material that residents can acquire.

The main reasons for the incumbents settling in Burnwood Road are related to the avoidance of violence in peripheral informal settlements and townships, convenient location to employment opportunities and basic urban amenities and services (e.g. schools, hospitals, shops, etc.).

The urgent need for the upgrading and development of the settlement is summarised below:

- Many of the 165 families are located on land, which has unstable soil and steep ground.
- Existing settlement is dense and does not have basic services such as potable water, sanitation, refuse removal or safe access, with consequent health impacts on both the adjacent-existing residential areas and the incumbents of the informal settlements

- Portions of the settlement are located on privately owned land

Community and Local Authority Participation

The North Central Local Council and the Metropolitan Council is actively involved in the upgrading project in the following manner:

- It is the project facilitator
- It is the developer
- It is providing the project management services, planning and design and engineering services
- It has provided bridging finance for technical input and construction
- It is responsible for maintaining health and safety standards in the area

Burnwood/Howell Road Development Committee

The Burnwood/Howell Road Committee was established formally in September 1995. The community committee has 10 members comprising of a Chairperson and Secretary and has been instrumental in organising and managing a temporary water supply (one stand pipe) and an informal pre-school and crèche.

The Committee has been intimately involved in all facilitation, site visits, conceptual planning, registration of dwellings, organisation of mass meetings, and has endorsed all technical decisions and a recommendation with respect to planning and engineering standards, programmes, and allocations and have given written undertaking of their commitment to the project.

Design Stage

Appointment of Consultancy

Markewicz English and Associates were appointed by Metro Housing to prepare a Less Formal Township Application (Leftie) for the project. The also worked hand in hand with the Council's planning division for housing design.

Contracting

Metro Housing appointed City Engineer of Durban to do the following tasks:

- To watch and supervise the works and to test and examine any materials to be used and workmanship employed, in connection with the works and to make measurement and carry out any duties assigned to him by the client.

Appointment of Contractor

P. K. Civils contractors were awarded tender as the building contractor after the tendering process had taken place. The tendering process will be discussed in detail at the production stage. However it is worth noting that the appointed tender was awarded to the lowest bidder.

Location/Site Context

The site measures approximately 1.5 ha in extent, is located east of Candover Road and is owned by the North Central Local Council. The site is situated on a convex spur, which slopes eastward towards the valley line and the Springfield Flats below. An informal settlements of approximately 165 families currently exists on the site. Certain portions of the land are also being used by the residents for informal agricultural activities.

Consultation/Community Input

Numerous meetings were held with the community to discuss the project and to ascertain their various needs, concerns and expectations. The community agreed on a 100m² site/plot option that would minimise the relocation of existing dwellings. It has also been agreed that those families that could not be accommodated on the available Council owned land would have to relocate to other housing schemes elsewhere.

Movement/Circulation

A proposed residential cul-de-sac extends from the existing Candover Road to terminate into a turning head half way down the spur. This road (1:6 gradient) is the only road that will accommodate vehicular traffic, including heavy duty and emergency vehicles such as fire, refuse and ambulances. From this road extends a series of footpaths/pedestrian lanes which serve to facilitate easy pedestrian access to the sites. Where these lanes/paths run perpendicular to the contours, there will be steps (particularly at intersections with the road) to deter vehicular traffic from moving through these paths.

The movement system thus comprises the following elements:

1. Residential cul-de-sac (8m reserve) – this road provides direct vehicular and pedestrian access to some individual sites. It will be tarred (4.5m road width) and also serves the important functions of emergency access as well as a community focus and social space.
2. Pedestrian lanes/footpaths (4-5 m reserve) – these movement routes are strictly pedestrian in nature and besides providing direct access to sites, also improve the flow of movement through the area, and contribute to the permeability of the overall living environment. They also serve an important function as service corridors and social spaces.

Land Use

A total of 89 sites have been achieved through the use of

- Minimum plot sizes of 100m²
- Panhandles
- Pedestrian access lanes
- Retention of existing dwellings where possible

The Land Use Breakdown for the layout is contained in Table 2.

	No.	Area (HA)	%
Residential	89	1.125	80.357
Roads	1	0.094	6.714
Footpaths	7	0.181	12.929

Engineering Services

Site

The geology of this area is 'Pietermaritzburg Shale' which is pickable shale material up to a depth 0m, to 1.2m, machine removable from 1.2m to 3.0m and below that hard rock. This material is underlain by dolerite in the lower section of the site, which may have to be removed by blasting.

Roads and footpaths

The road is 140 m in length, is an extension to Candover Road and comprises a 4.5 m wide concrete road in an 8.0m reserve. Because of the steep natural ground conditions footpaths and steps will have to be used to service the remainder of the sites.

Development of sites on the southern and northern side of the road is on steep slope. Service vehicles will be required to enter the area, and the 8.0m wide road reserve is able to accommodate this.

Footpath reserve widths vary from 4.0 m to 5.0m according to the services they will be required to accommodate.

Road Reserve	8.0m full formation	5.0m full formation	4.0m full formation
Surface	4.5 m – 130 mm concrete on 150 mm crusher run	1.0 m – 80 mm concrete on 80 mm crusher run	1.0 m – 80 mm concrete on 80 mm crusher run
Kerbing	Semi-mountable concrete kerb	In-situ kerbs for SW control & steps	In-situ kerbs for SW control & steps
Length	140m	100m	100m

Sewerage/Sanitation

The development will be provided with full standard water borne sewers. Domestic connections will be provided to each site.

Stormwater

The road and footpath surfaces have adequate capacity to cater for stormwater drainage and discharge into a natural valley line. Sites which do not have drainage direct to road will be provided with piped stormwater reticulation.

Catchpits and piped stormwater drainage will also be provided to cater for runoff from the road area.

Water Reticulation

A semi pressure water reticulation system will be installed by Durban Water and Waste.

Electrical Reticulation

Street lighting will be provided. The Ready Board System will be utilised for domestic reticulation and will be designed and installed by Durban Electricity.

Geotechnical Information

Following the walk over survey on 17/07/1996 the area has been divided into 4 sections, as outlined below:

Sandstone Zone 1

As previously indicated the sandstone zone is steeply sloping, but nevertheless is stable and suitable for township development. Hard rock lies close to surface under steeper slopes and excavations below about 2-3 m will require blasting, but there are no other specific constraints on construction. Toward the intersection of Howell Road and Standly Copley Drive slopes become shallower and are expected to be underlain by deeper sandy soils, with the probability of groundwater seepage occurring in the vicinity of the valley centreline.

Shale Zone 2

This well-defined concave slope shale zone lies adjacent to the fault. No distinct pre-existing landslides in the area have been identified, but geological and geomorphological conditions are such that it is considered to be in a state of marginal stability, for which no guarantee of long term safety for conventional housing can be given. It is recommended that no development be permitted in this area at this stage. Bush clearing with test pit excavation would be required to confirm this finding, but it is nevertheless considered that development of normal residential housing in this area would be unwise.

Shale Zone 3

This zone comprises the convex slope underlain by shale at shallow depth. It appears to be unaffected by landsliding, but severe shale contortion in places could lead to block or wedge slope failures under adverse circumstances. Development of the zone may take place provided the normal potentially unstable shale area precautions are implemented. These would usually be designed and supervised by a consulting geotechnical engineer.

Shale Zone 4

This deeply incised concave slope is known to have been affected by extensive landsliding and is considered to be unsuitable for any form of development.

Flood Line

The development will not be affected by the 1 in 50 year flood line of the stream. The catchment area of the stream is minor and much less than one square kilometre therefore obviating the need for a 1:50 year flood line.

Project Financing**Funding**

The Northern Central Local Council has on its 1996/1997 budget provided R1.53 million as bridging finance for the planning and upgrading of the Burnwood settlement. This funding will be recovered by the Council on completion of the construction and registration of the individual project linked subsidies from the Provincial Housing Board (PHB).

Provincial Housing Board

The subsidy scheme was released for implementation in April 1994 and served to replace existing policies for the provision of new housing. It serves to provide a once off benefit to the home seeker in the form of subsidy. Subsidy due is as follows:

Household Monthly Income	Subsidy Due
R 0 – R 800	R 15,000
R 801 – R 1,500	R 12,500
R 1,501 – R 2,500	R 9,500
R 2,501 – R 3,500	R 5,000

Note that R6-00 = 1 USA dollar (\$1)

This scheme makes statutory funds equally accessible to Government Organisations, Non Government Organisation, Communities and Private Developers. It hence allows a series of housing initiatives to run in parallel encouraging strong private sector involvement.

The subsidy is 'once off', payable upon transfer of the nit into the names of the beneficiary. Where necessary, beneficiaries would have to look to private lending institutions for long term finance.

The scheme embraces consultation and community participation in its fullest sense. The scheme places strong emphasis on the 'process' engaged in housing delivery. It gives opportunity for the beneficiary as opposed to providing houses.

Application was lodged and approved by the PHB in line with resolution KR1997 0383. The application requested the capital subsidies to the value of R1 535 250.

Price of Sites

The following table indicates the breakdown of costs for the project and the final cost per site – R17250. Note that each site/plot is not less than 100m².

Budget Item	Per Site Budget	Total Budget
Land	R500	44500
Project Management	R300	26700
Toposurvey	R17	1513
Geotech Engineer	R10	890
Civil Engineer	R600	53400
Town Planning	R132	11748
Land Surveying	R170	15130
Allocation and Conveyancing	R200	17800
Roads, stormwater, sewerage	R5000	445000
Water – semi pressure	R390	34710
Electricity	R125	11125
Interest on Bridging Finance	R250	22250
Contingencies	R200	17800
Housing Residual	R9356	832684
Total	R17250	1535250

Note that R 6.00 = to one USA dollar

Lessons for Future Projects

Much effort was put at planning stage and everything seemed to be in place and from the beginning of the project people were aware that not everyone will benefit from the project because of limited sites. However as it became evident during allocations stage that will be discussed later on, one important aspect was ignored. We did not prepare the specific allocation document that will bind all concerned and that was the main cause for long delayed allocation after completion of topstructure.

Production Stage

Tendering

The Council followed the below stated process for Burnwood Road Project. The writer will not go into all the details of tendering but will only limit herself to important areas.

Sealed tenders made out of the form of tender that are signed by or on behalf of the tenderer and addressed to the Associate Town Clerk, City Hall and marked with the appropriate contract number.

Tenders not made out of the accepted forms are liable to rejection and tenders submitted by telegram or telex are considered provided the telegram or telex is confirmed by the letter covering the tender documents also addressed to the Associate Town Clerk's Department and posted not later than the date and hour of the closing of tenders.

Withdrawal of Tender

Tenders must hold good for a period of 12 weeks from the date of opening, unless otherwise stated in the appendix to the form of tender. The Council may, during the period for which tenders are to remain open for acceptance, authorise a tenderer to withdraw his tender in whole or in

part on condition that a tenderer pays to the Council on demand a sum of R1000-00.

Failure to Provide Security

If the tenderer, when notified of the acceptance of his tender, fails to provide security of contract and the council elects to cancel the contract on that ground, the Council may demand a sum of R1000-00 or the Council may take other action whether by way of a claim for loss or damage suffered by the Council arising out of such breach.

Inspection of Site

The tenderer shall inspect and examine the site and its surrounding and shall satisfy himself before submitting his tender as to the nature of the ground and subsoil, the form and nature of the site, the accommodation he may require, and in general shall himself obtain all necessary information as to risks contingencies and other circumstances which may influence or affect his tender, provided that whenever soil investigations have been carried out in connection with piling and the results and location of such investigations are indicated in the tender documents, the tenderer shall base his tender on the information provided.

Import Permits

The Council will not undertake to secure any import permit or currency for the import of any goods or materials required for the execution of this contract. Tenders must apply direct for any import permits or currency needed, but the Council will furnish successful tenderers with a supporting statement if required.

Differences and Discrepancies

Should there be any difference or discrepancy between the prices or particulars contained in the official form of tender and those contained in any covering letter from the tenderer, the prices or particulars contained in the official form of tender shall prevail.

Unless otherwise expressly stipulated in the letter covering the tender, every tenderer shall be deemed to have waived, renounced and abandoned any conditions printed or written upon any stationery used by him for the purpose of or in connection with the submission of his tender, which are in conflict with the Council's conditions of tender and conditions of contract. Tenderers are warned that any material divergence from the official conditions or specifications will render their tenders liable to disqualification.

Refund of Tender Deposits

One set of tender documents and an additional copy of the schedule of quantities for retention by tenderers will be issued for each tender. The amount deposited for the issue of tender documents will be refunded on receipt of a bona fide tender and return of the plans in connection therewith within one week of the date of closing of tenders.

Where a person who takes out tender documents cannot submit a tender, the amount of the deposit will be refunded if the complete set of tender documents is returned before the date of closing of tenders.

Additional copies of the documents will be available at the full amount of the deposit per single copy but such deposit is not refundable.

The amount deposited by electrical sub-tenderers for the issue of tender documents will be refunded on receipt of a written application for refund, which shall include the names of the principal tenderers to whom tenders have been submitted.

Patent Errors

If the tenderer in submitting his tender makes an error which is patent on the face of the tender documents, the Council reserves the right to correct the error so that the tender documents reflect the true position.

Completion of Tender

The tenderer is to complete each item in the schedule of quantities with a rate and an extension. The sum of the extension is to be carried to the form for tender. Pencil or erasable ink is not to be used.

Failure to complete and return annexures and the schedule of quantities with the form of tender will be considered a material divergence from the conditions of tender and may render the tender invalid.

Bank Guarantee in lieu of Retention Money

With regard to clause 60 (2) of the conditions of contract whereby under certain conditions, the balance of retention money may be paid prior to expiry of the maintenance period, tenderers are required to state at the time of tendering whether it is their intention to apply for release of this retention money against provision of an acceptable bank guarantee.

Furthermore, tenderers are required to state what reduction in the tender amount will be offered by them should a bank guarantee be accepted in lieu of retention money during the maintenance period.

Shipment of Goods

Where goods are to be imported from overseas, tenderers are requested to ensure that, wherever possible, vessels of the South African Conference Shipping lines are used.

General Sales Tax

All prices tendered shall be deemed to be inclusive of general sales tax unless the tenderer specifies which items are exclusive of general sales tax and in such cases the tenderer shall state separately the amount of general sales tax payable for each such item.

Issued of Reduced Size Drawings with Tender Documents

In the interest of economy the drawings issued with the tender documents may be reduced in size. The scales indicated on the drawings may, therefore, not apply. Full size drawings are available for scrutiny at the City Engineer's Department and copies will be issued if required.

Custody of Drawings

The drawings shall remain in the sole custody of the engineer, but three copies thereof shall be furnished to the contractor free of cost. The contractor shall provide and make at his own expense any further copies required by him. At the completion of the contract the contractor shall return to the engineer all copies of drawings provided under the contract.

The contractor shall give reasonable notice in writing to the engineer of any further drawing or specification that may be required for the execution of the works or otherwise under the contract.

One Copy of Drawings to be kept on Site

One copy of the drawings furnished to the contractor as aforesaid shall be kept by the contractor on the site and the same shall at all reasonable times be available for inspection and use by the engineer and the engineer's representative and by any other person authorised by the engineer in writing.

Further Drawings and Instructions

The engineer shall have full power and authority to supply to the contractor from time to time during the progress of the works copies of such further drawings and such instructions as shall be necessary for the purpose of the proper and adequate executing and, where specified, maintenance of the works and the contractor shall carry out and be bound by the same.

Sureties

The contractor shall within fourteen days of notification of the acceptance of his tender provide two sureties approved by the City Treasurer or obtain a guarantee of an insurance company or bank to be jointly and severally bound with the contractor in a sum equivalent to 10% of the tender sum for the due performance of the contract, under the terms of the bond; the said sureties, company or bank, and the terms of the said bond, shall be such as shall be approved by the City Treasurer, and the provision of such sureties, so entered into, shall be at the expense in all respects of the contractor. Such bond shall remain in the force until the certificate of completion in respect of the whole of the works has been issued.

The contractor may offer a retention money guarantee in lieu of retention deductions from monthly progress payments. In such cases he shall, within twenty one days of the date of dispatch of notification of the acceptance of his tender, provide a guarantee on the prescribed form and to the approval of the City Treasurer, and failure to do so, shall invalidate the aforementioned offer.

Sufficiency of Tender

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices stated in the priced schedule of quantities and the schedule of rates and prices (if any) which rates and prices shall (except insofar as it is hereinafter otherwise provided) cover all his obligations under the contract and all matters

and things necessary for the proper completion and, where specified, maintenance of the works.

Adverse Physical Conditions and Artificial Obstructions

If, however, during the execution of the works the contractor shall encounter adverse physical conditions (other than weather conditions or conditions due to weather conditions) or artificial obstructions, which conditions or obstructions could not have been reasonably foreseen by an experienced contractor, and the contractor is of the opinion that additional work will be necessary which would not have been necessary if the physical conditions or artificial obstructions had not been encountered and intends to make any claim for additional payment, he shall give notice to the engineer in writing before commencing such additional work specifying:

1. The physical conditions and artificial obstructions encountered,
2. The additional work which he proposes to do and
3. The extent of the anticipated delay in or interference with the execution of the work.

The Council shall be entitled to withhold payment in respect of any additional work executed prior to the giving of such notice.

Quotation or Estimate

Further if at the time of giving a notice as stated above the additional work with the contractor proposes to do is then sufficiently defined to enable the contractor to give a quotation for the payment of the cost thereof (including if practicable the cost of suffering the said delay or interference) he shall prepare and submit with such notice a quotation, and in all other cases the contractor shall submit with such notice an estimate of the additional cost to the contractor of doing the additional work an estimate of the cost of the aforesaid delay or interference.

Certificates and Payment

Monthly Payments

The contractor shall be paid monthly on the certificate of the engineer the amount due to him in respect of

- The estimated contract value of the permanent work executed up to the end of the previous month and in addition such amount as the engineer may consider fair and reasonable for any temporary works or other special items for which separate amounts are provided in the schedule or quantities, subject to-
 - A retention of 10% on the amounts certified for payment in respect of total work done including escalation, having a value up to and including R 500,000; and
 - A retention of 5% on the amounts certified in respect of total work done in excess of R 500,000.

Provided that, when the contractor provides a retention money guarantee acceptable to the City Treasurer, no retention money shall be deducted from monthly payments due to the contractor.

- 80% of the value of materials of which the contractor is the owner and which have been delivered on the site for permanent work but not yet incorporated in the works, provided that the contractor has produced to the satisfaction of the engineer, documentary evidence of ownership of such materials.

No interim certificate shall be issued for a sum less than that named in the appendix to the Form of Tender.

Time of Payment

Payment will be made to the contractor or to an agent or attorney duly authorised by the contractor to receive payment on his behalf not later than the sixteen day of the month following that for which the engineer's certificate is issued.

Correction and Withholding of Certificates

The engineer may by any certificate make any correction or modification in any previous certificates, which shall have been issued by him, and shall have power to withhold certification in respect of any part of the works, which is not being carried out to his satisfaction.

Approval Only by Final Certificate

No certificate, other than the certificate referred to in clause 62 hereof, shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof or of the accuracy of any claim made by the contractor or of additional or varied work having been ordered by the engineer, nor shall any other certificate conclude or prejudice any of the powers of the engineer.

Final Certificate

The contract shall not be considered as completed until a final certificate shall have been signed by the engineer and delivered to the Council stating that the works have been completed and, where specified, maintained to his satisfaction. The final certificate shall be given by the engineer within fourteen days of completion of the entire works or the expiration of the period of maintenance or latest period of maintenance as the case may be, or as soon as thereafter as any works ordered during such period pursuant to clauses 49 and 50 hereof shall have been completed to the satisfaction of the engineer, and full effect shall be given to this clause notwithstanding any previous entry on the works or the taking possession, working or using thereof or any part thereof by the Council.

Settlement of Disputes – Arbitration

If any dispute or difference arise between the engineer and the contractor in connection with or arising out of the contract or the carrying out of the works (whether during the progress of the works or after their completion, and whether before or after the determination or abandonment or breach of the contract), it shall be referred to and be settled by the engineer, who shall state his decision in writing and give notice of the same to the contractor. Such decision in respect of every matter so referred shall forthwith be given effect to by the contractor, who shall proceed with the works with all due diligence whether

notice of dissatisfaction in given by him as hereinafter provided or not.

If the contractor be dissatisfied with any such decision by the engineer he may, within fourteen days after receiving notice of such decision, lodge written notice of dissatisfaction with the engineer, and either party may demand a reference to arbitration. The engineer shall name three civil engineers who are members of good standing of the South African Institution of Civil Engineers, from whom the contractor shall choose one, who shall be sole Arbitrator and to whom contractor and the Council do hereby agree to abide and submit to the sole Arbitrator, and his decision shall be taken by all parties as final and binding.

Award of Tender

As already indicated the service and construction tender was awarded to P. K. Civils Contractors. P. K. Civils were the lowest tender however the Council indicated that this was not the criterion.

Quality Assurance

Quality of Materials, Workmanship and Tests

All materials and workmanship need to be of respective kinds described in the contract and in accordance with the engineer's instructions, and shall be subjected from time to time to such tests and by such persons as the engineer may direct at the place of manufacture or fabrication or on the site or at all or any such places. The contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used, and shall supply samples of materials before incorporation in the works for testing as may be selected and required by the engineer.

Cost of Samples

All samples are supplied by the contractor at his own cost if the supply thereof is clearly intended by or provided for in the specification or schedule of quantities, but if not then at the cost of the Council.

Cost of Tests

The cost of making any test is borne by the contractor if such test is clearly intended by or provided for in the specification or schedule of quantities and (in the case only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purpose which it was intended to fulfil) if such is particularised in the specification or schedule of quantities in sufficient detail to enable the contractor to price of allow for the same in his tender.

Cost of Test Not Provided for

If any test is ordered by the engineer which is either

1. not so intended by or provided for, or
2. (in the cases above-mentioned) is not particularised, or
3. though so intended or provided for is ordered by the engineer to be carried out by an independent person at any other place than the site or the place of manufacture or fabrication of the materials tested,

then the cost of such test shall be borne by the contractor if the test shows the workmanship or materials not to be in accordance with the provisions of the contract or the engineer's instructions, but otherwise by the Council.

Access to Site

The engineer and any person authorised by him shall at all times have access to the works and to the site and to all workshops and places where work is being prepared or where materials, manufactured articles and machinery are being obtained for the works, and the contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

Examination of Work before Covering Up

No work shall be covered up or put out of view without the approval of the engineer, and the contractor shall afford full opportunity for the engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The contractor shall give one clear normal working day's notice to the engineer whenever any such work or foundation, as the case may be, is ready or is about to be ready for examination and shall in giving such notice specify the time when such work or foundation, will be ready for examination.

The engineer shall within one clear normal working day from time to time specified by the contractor attend for the purpose of examining and measuring such work or of examining such foundation or notify the contractor that he considers the measurement of such work or foundation unnecessary.

Uncovering and Making Openings

The contractor shall uncover any part or parts of the works or make openings in or through the same as the engineer may from time to time direct, and shall reinstate and make good such part or parts to the satisfaction of the engineer. If any such part or parts have been covered up or put out of view after compliance with the requirements of the above stated subsection and are found to be executed in accordance with the contract the expenses of uncovering, making openings in or through, reinstating and making good the same shall be borne by the Council, but in any other case all such expenses shall be borne by the contractor and shall be recoverable from him by the Council or may be deducted by the Council from any monies due or which may become due to the contractor.

Removal of Improper Work Materials

The engineer shall during the progress of the works have power to order in writing from time to time-

1. the removal from the site, within such time or times as may be specified in the order, of any materials which in the opinion of the engineer are not in accordance with the contract,
2. the substitution of proper and suitable materials, and
3. the removal and proper re-execution (notwithstanding any previous test thereof or interim payment thereof) of any work which in respect of materials or workmanship is not in the

opinion of the engineer in accordance with the contract.

Default of Contractor in Compliance

In case of default on the part of the contractor in carrying out such order, the Council shall be entitled to employ and pay other persons to carry out the same, and all expenses consequent thereon or incidental thereto shall be borne by the contractor and shall be recoverable from him by the Council or may be deducted by the Council from any monies due or which may become due to the contractor.

Production Planning

Scope of Contract

The contract entails the construction of services, within the informal settlement area of Burnwood Road, Clare Estate. The contract was classified as “General Civil Engineering”.

The informal community has actively participated in the facilitation and acceptance of upgrading proposals for the settlement.

The work involved includes, inter alia, the following:

1. bulk earthworks in the form of a cut to fill operation
2. approximately 140m of road layer works including concrete hardened surface (4.5m).
3. approximately 420m of concrete footpaths (1m wide) including approximately 260 number of steps
4. concrete kerbing
5. construction of stormwater inlets, and stormwater drainage
6. construction of 160 mm nominal diameter HDuPVC foulwater sewers.
7. Laying of various ducts

The construction period is 4 months inclusive of public holidays and building holidays. It was recommended that the contractor should employ labour from the local community wherever possible.

Pedestrian Movement

The contractor was responsible for accommodating all pedestrian movements in the area of works. Allowance was made in the relevant rates for any barricades and signs required.

Existing Services

Although every effort was made to depict these services accurately, the positions shown must be regarded as approximate. The contractor had to ensure that the existing foulwater sewers are maintained live at all times. Where necessary the contractor should make allowance in the rates for making temporary connections and or rider mains in this regard.

Contractor’s Camp Site/Store Yard

The Executive Director (Physical Environment) allocated an area where the contractor may erect a temporary office and storeroom. The campsite was allocated provided that:

- The City council is fully indemnified at all respects through the occupation and use of the office and storeroom including claims from third parties;
- The office and storeroom is used solely for the purpose of the contractor for this contract only;
- The contractor is responsible for obtaining the necessary sanitary and health clearances;
- The contractor’s staff are not housed on site;
- The area is reinstated to its former condition when vacated or as approved by the engineer.

Sanitary Facilities

Water-borne sewerage facilities were not available on site. The necessary temporary toilet/ablution facilities were to be provided by the contractor to prior approval and satisfaction of the Health Department. The facilities must be suitably screened. Chemical toilets are acceptable.

Approved Tip

The nearest approved tip is at the Municipal refuse dump at Bisasar Road, which is approximately 2 km from site.

The contractor's attention was drawn to the fact that charges are levied at the Municipal refuse tip for the dumping of certain material. The contractor, therefore had to make allowance in his rates for the above. Contractors cover material free of charge provided prior arrangements are made with the Disposal Branch of Durban Solid Waste.

Should the contractor wish to use any other tip area for the disposal of soil, rubble, vegetation, etc. its use shall be subject to the approval of the engineer and the landowner.

Water, Lighting and Power for the Works

The contractor had to make his own arrangements with the proper authority, and at his own cost, supply such water and other services as he may require, and he had to bear the cost of the connection meter hire, and all works necessitated by the provision of such services.

The contractor had to make his own arrangements to supply at all times at every part of the job, all necessary lightning and power as may be required including that for the Sub-contractor’s, by means of generators or in conjunction with the relevant authorities and shall bear the cost of meter hiring and pay all charges in connection with same.

Windblown Material

The contractor had to ensure that dust or other windblown material from the site does not effect adjoining properties nor cause hazardous conditions on site and had to make allowance in the rate tendered under Section 1. AB.23 in the schedule of quantities for sweeping, sprinkling with water or other measures necessary to fulfil this requirement.

Blockage of Foulwater and Stormwater Sewers

The contractor was responsible for ensuring that cementitious sludge, sand and rubble from the works do not enter the foul water or stormwater reticulation system.

The contractor had to be liable for any costs incurred by the Council or others as the result of blockages in the reticulation system attributed to failure to comply with the above requirement.

Minor Concrete Roadworks

Earthworks and Preparation of Sub-grade Soils and Roadbox

The roads had to be cut and trimmed to final grade levels and cross-sections as shown on the project plan.

Where fill embankments are required, the fill materials had to be deposited in layers not exceeding 300 mm and compacted to a minimum of 93% Mod.A.A.S.H.T.O. density. The top 300 mm of all road formation had to be compacted to a minimum of 95% Mod. A.A.S.H.T.O. density.

In areas where normal compaction is ineffective and/or sub soil seepage is evident, 300 mm of the unstable material must be replaced with 300mm of approved dump rock.

Concrete Slab Construction-roads

On the approved sub base and between well-constructed site shutters a concrete slab should be poured using Grade 25/26 vibrated concrete.

The concrete surface had to be screened and finished by transverse brushing with a stiff broom to give a skid-resistant texture.

Curing had to commence as soon as possible after the concrete had been laid. No slab had to be left unprotected after finishing. Curing had continued for seven days after the laying of the slab.

Un-reinforced Concrete Slab Construction-roads

On the approved sub-grade and between well-constructed side shutters an un-reinforced concrete slab had to be poured using grade 25/26 vibrated concrete. The slab had to be a maximum length of 5,0m.

Joint Details

Joints may be formed by either saw cutting to a depth of 25mm within 24 hours of casting or casting alternate panels. Load transfer across joints is not considered to be essential in this application and doweled or keyed joints are not considered to be necessary.

Joints had to be sealed with a silicone type concrete pavement sealant 'Bostik 22 DS100' or similar approved in accordance with the typical sealed joint geometry.

Recruitment of Labour

Although this contract was not deemed to be "Labour Intensive" it is recommended that unskilled workers be drawn from a prioritised inventory of unskilled workers, and unemployed people prepared by the Howell Road/Burnwood Road Development Committee. The contractor had to table his requirements, and the Committee will assist the contractor in recruitment process.

1. The rate of pay shall be based on the current daily rate for unskilled worker of R40-00 for 9.25-hour working day inclusive of lunch and tea breaks. This rate is exclusive of Workman's Compensation Act

(W.C.A.) and the Unemployment Insurance Fund (U.I.F.) contributions.

2. Payment of all local workers shall be on a fortnightly basis.

Training

Training needs for unskilled employees utilised on the project should be established by the engineer in consultation with the contractor and the Howell Road Committee. Payment under this item would only be made in respect of specific agreed training for which accredited certification is issued

Protection of Pedestrian at Roadworks

Footpath or pavement obstructions can be a serious hazard to pedestrians – particularly for the elderly, disabled, mothers with prams or inquisitive children – unless strict precautions are taken during all stages of the work to ensure their safety.

Prior Consultation

Prior consultation between local authority, police and other interested bodies to plan the warning signs, barriers and diversions for pedestrians is strongly advised. Each site should be considered individually to meet its own special requirements.

General Requirements

- All obstruction and excavations on or near the footpath must be strongly fenced off at all times for the protection of the public on foot (Factories Act Reg. D17).
- Where the footpath or verge is substantially obstructed, pedestrians must be provided with a safe passage on the roadway fully protected from passing vehicles and adequately illuminated in poor visibility and at night.
- All temporary barriers or devices separating pedestrians from vehicles must clearly indicate to approaching drivers the full width of the obstruction in the roadway and the route vehicles must follow to allow a reasonable measure of safety.

Pedestrian route must be marked out with continuous barriers and lamps must be provided at night. A clear width of at least 1 metre should be allowed, but if there are many pedestrians and people with prams then 1,5 m will be required. Scaffolding near pedestrian ways should have white bands around the uprights and continuous white paint on horizontal supports at the sides of the pedestrian way. The bands should be 1150 mm in depth and the lower edge should be 1,6 m above ground.

Economic Control

Time of Payment

Payment is made to the contractor or to an agent or attorney duly authorised by the contractor to receive on his behalf not later than sixteen day of the month following that for which the engineer's certificate is issued.

Upon receiving the approval certificate from the engineer, Project Manager also have to be satisfied before processing such payment before processing the said payment to the Finance Section.

Further to that the Project Manager will have to make monthly statements of cash flow and budget review where necessary. Recommendation if necessary made by the Project Manager will have to be approved by the Housing Committee.

Defects Liability Period

The period that was agreed upon was three months. Any defects that are reported after that will be the owner's responsibility. However the problems occurred at this stage, the contractor managed to finish in time (October 1998) but individual handover took place in March 1999.

Handover

The contractor having finished their job in time handed over to the City Engineer who had done all the necessary inspection. The engineer thereafter handed over to Metro Housing and indicated that construction has been completed to their satisfaction and houses are ready to be allocated to the beneficiaries, which is done by Metro Housing.

Township Registration

This is done once we have received the approved general plan from the State Land Surveyor. The general plan was prepared by the Rod Mountain Company whom we had been part of our consultants. At this stage we appointed Shepstone and Wyle Attorneys to do submission to the Deed Office on our behalf. The following documents are needed in order to process such application:

- Durester copy of approved general plan
- Signed conditions of establishment
- Signed Certificate of Compliance with the above
- Conditions
- Proposed township name

Allocation Policy

Allocation policy for the project was not prepared up front. This was one of the major problems after construction process had been completed. The only issues that were discussed with community members were that all the people that will not benefit from the project will have to move to other project in other area. One of the options given to them was to move to Westrich Project, which is about 15 kilometres away from the project site.

In meetings that were to follow with community members we first asked for volunteers to move and nobody wanted to move. After length deliberation and involvement of political organisation, it was agreed that the Council will use loitering system and committee members will be given first preference.

The Council implemented that and handover to individual owners was only done in the beginning of March 1999. The situation was very tense and Council employees had to be accompanied by the protection services.

Handover to Individual Beneficiaries

Due to unresolved issues in allocation the handover took longer than planned. The maintenance period had expired at this time and there were threats of invasion. All the beneficiaries had to demolish their informal shacks as had agreed upon. People started raising issues of small houses

and larger families however we had to stick to what we had agreed upon.

Property Management

Maintenance Planning

Once handover is complete, the project comes to an end. Ongoing maintenance is the responsibility of other service unit and occupants are now responsible for their houses. Workshops are conducted by the Housing Policy unit within Metro Housing to make sure that all householders are aware of the function of other service units.

Durban Solid Waste department is responsible for the collection of refuse. Rates section is responsible for collection of rates and there is water and electricity department.

Summary of the Problems Encountered

The problems encountered during the project life cycle can be summarised as follows:

- Delayed allocation due to lack of proper allocation policy
- Unacceptable size of the house as people have large families
- Insufficient number of sites due to limited developable land within the project
- Lack of home ownership education (property management) not budgeted for.

Possible Solutions

Upfront Allocation Policy

It became clear towards allocation that while community members were aware that not everyone was to benefit, no one wanted to be amongst the people that will not benefit. It is important in future to have the allocation policy upfront that will be binding to all concerned.

Alternative Construction Methods

Instead of confining oneself to conventional methods of construction we need to explore possibilities of cheaper but good construction methods in order to improve the quality and the size.

Access to Loans and Social Savings

Create methods that will enable the poor to access soft loans and promotion of social saving clubs towards housing.

Continuous Involvement of Metro Housing

The continuous involvement of the Department is crucial to assist the communities with loans, home ownership education etc.

References

Aldosson, J. and K. Widen

1999 *Property Market*, International Construction Management. Lund University, Sweden.

Department of Housing

1995 *White Paper on Housing*. Pretoria, South Africa.

Markewics English & Associates

1996 *Proposed Residential Township Burnwood Road*. Urban Designers, Durban, in South Africa.

Turner, Bengt

1997 *Social Housing Finance in Sweden*. Institute for Housing Research, Uppsala University.

Urban Development Department

1996 *Provision of Engineering Services to Burnwood Road*. Physical Environment Service Unit, Durban, South Africa.