Urban poverty and city development:
Some perspectives and guidelines

by

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1. **INTRODUCTION**

Over the last few years there has been increasing recognition that the operation of South African cities actively aggravates the material impoverishment of the majority of urban dwellers and that, in so doing, income inequality is aggravated: the urban systems affect different income groups differentially, with the poorest groups being relatively the most disadvantaged. Many of the overt processes contributing to this have been identified: inadequate housing supply and concomitant exploitation; the correlation between inadequate housing and disease (through overcrowding, insufficient shelter, aggravated by the harassment of squatters, inadequate ventilation, and so on) and the interrelationship between patterns of disease and poverty; the high costs imposed by the dominant system of housing delivery, controlled, as it is, by rigorously enforced building standards; a lack of access to capital and to building materials and the high costs of raising finance through loan sharks; the spatial correlation between major urban facilities and opportunities and higher income groups resulting in the poor having to travel considerable distances daily - an imposed travel pattern which not only results in large direct monetary costs, but which also makes savage inroads on people's time, with profoundly negative consequences for productivity, energy, and social and family life; the inability of the poor to gain access to the economic system or to the most favourable economic locations; the lack of correspondence between the priorities of the poor and urban investment patterns, because of a lack of access to decision-making processes; and so on.

Not so widely commented upon, but equally apparent to people who are familiar with the living areas of the poor, is the experimental poverty imposed by these urban systems. Children grow up in environments which are totally unscaled in terms of the human activities which they must accommodate. Each area, in terms of its feel and the opportunities it offers, is the same as the others. They are all simply uni-functional sleeping areas with little or no sense of place. There is nowhere to escape the privations of the overcrowded private
dwellings, save the scaleless streets or the wind-swept 'open-spaces' which are, in reality, simply unsightly and dangerous dumping grounds for rubbish. Teenagers courting lovers, the old, have nowhere to meet - nowhere, that is, which actively contributes to the joy of meeting. The physical environments actively impede already tenuous processes of social and community formation, for there are no communal places to which people automatically gravitate when community communication or interaction is intimated. There are no places for spontaneous events, which should be one of the hall-marks of urban living, to occur - when they do occur, they have to contend with the environment, rather than being enriched by it. Particularly importantly, there is no real contact with nature, or with the agricultural base which underpins urban living. The pathetic substitute is the provision of 'open-spaces' or 'parks' which neither the community nor the local authority can afford to maintain and which negatively, rather than positively, affect the quality of urban life.

This increasing awareness of problems of poverty, inequality and de-humanization has inevitably led to myriad calls for alternative urban policies and practices, both by 'expert' or 'specialist' analysts and, more importantly, by affected communities who are directly and actively involved in the struggle for improvement.

However, a disturbing characteristic of most 'alternative' policies and actions proposed is that they are either impossible to attain (and thus constitute no more than wishful thinking) or, if implemented, would anyway fail to bring about really significant improvements in the lives of the urban poor.

There are, in my opinion, two main reasons for this. Firstly, each perceived problem tends to be viewed discretely and the 'alternative approaches' advanced are usually simply reactionary responses to prevailing policies or practices: thus, a perceived policy failure around one urban element leads to counter-proposals within the same items of reference, Whereas real improvement requires a change in the terms of reference or context. examples can be advanced to illustrate the first tendency.

Housing policy is a case in point. In the face of growing criticism of the ubiquitous application of conventional mass housing approaches to the problem
of low income housing provision, the unproblematic cry went up for the implementation of self-help approaches as an alternative (rather than a supplement) to the prevailing approach, without any significant adjustment to the political, financial, distributional, organizational or physical context within which the policies were to be applied. Clearly, in this conceptualization, the housing problem is seen to lie in the process of housing delivery: different schools of thought see different processes of delivery as being inherently better than others. Closer analysis, however, reveals this conceptualization to be profoundly erroneous. Different approaches or, more importantly, combinations of approaches are suited to different contextual conditions. Further, different approaches require different operational contexts to be applied successfully.

Even more significantly, in this conceptualization the low income housing problem (that is, the need to create rich, enabling environments for the urban poor) is equated with the need to provide houses. In fact, any system of delivery which is simply directed towards providing dwelling units or shelter is doomed to failure. The real challenge is to provide total living environments which integrate the poor into the fabric of urban life and which create maximum chances for them. The major difficulty in this regard is the peripheralization of the poor and to meet this challenge the urban context or framework into which housing is placed must be changed.

Another case can be found in the field of transportation. A common cry is to increase and improve public transportation to assist the poor - a manifestly sensible demand. In fact, however, under the present sprawling form of urban development it is impossible to provide efficient and viable public transportation systems which serve the majority of the people: to achieve this, a change in context, in the dominant mode of city building, must occur. Alternatively, the call is to decentralize major economic, commercial, social, cultural and educational facilities into the urban periphery. Again, this is clearly sensible. However, the pre-conditions necessary for such re-locations to occur successfully do not exist in most cases: they require significant changes to the urban structure.

A third case can be found in calls to promote the 'informal' economic sector. The assumption seems to be that if informal sector activity is allowed,
(in the sense that de-regulation occurs), somehow significant inroads will be made into the problem of urban poverty. In fact, present forms of city development which dissipate and spread markets and which emphasize a limited number of central locations only, encourage the centralization of economic activity. Even if restrictive regulations were significantly loosened, most informal operations would still find themselves trapped in the most peripheral locations and condemned to a perpetually marginal existence. Again, the urban structural context must be altered if, on a large scale, small operators are to have a genuine chance of success.

Yet another example is the call, as a reaction to the exclusion of the poor from city decision-making processes and local control, for "bottom-up" development: the call is for the devolution of maximum decision-making powers to local communities and groups, to enable them to identify local priorities and to initiate projects, thereby promoting democratic organization and developmentally positive moves towards self-reliance. At face or rhetorical value, such approaches appear unexceptionable. In practice, their efficacy depends on the context in which they are applied. In cases (such as those applying in most South African cities) where the communities in question are almost exclusively populated by the poor, are spatially marginalized and have no effective access to the collective facilities of other communities or of the city at large, and have little or no access to external resources, such policies are likely to be developmentally negative rather than positive. In effect, in these situations, each local community is expected to be self-sufficient - to internally generate an adequate range of social and utility infrastructure - and this they can never do: they thus remain permanently under-serviced and are trapped in a perpetual cycle of debt; the situation favours co-option and exploitation rather than democratic organization; it promotes a condition of dependency, rather than self-reliance; and so on.

The second, and perhaps most serious, problem with most 'alternative' strategies being advanced in the urban arena is that people's sense of possibilities has been distorted and dulled by the historical legacy of institutionalized decision-making and urban sterility within which their experience has been moulded. The alternatives advanced are usually reactionary; they fall squarely within the terms of reference of the recent historical experience of this
country, and that experience is an impoverished one. While there is fairly general agreement that innovation is required in the field of city building, therefore, there is little agreement on, or convincing thinking about, what it is that people concerned with urban environments should be striving for.

This paper is an attempt to define a number of major changes to dominant city building practices which are necessary if significant improvements in the lives of the urban poor are to occur in future years: they are pre-conditions for realising the potential of many of the approaches, some of which have been mentioned above, which are so prevalent in the rhetoric of development planning. The paper is thus intended as a modest, preliminary, contribution towards the definition of what must change if the quality of life in urban areas is to improve substantially. Perhaps the most significant contribution of the paper is to raise this question. Certainly, it is one of the most important we face in the field of urban development and urban living. Equally certainly, it has received little or no serious examination to date.

The paper is structured in the following way. It begins by raising the question of urban performance, and thus what the urban management process should be trying to enhance and protect. It then shows how the characteristics of, and processes within, South African cities fail to deliver people's entitlement and how the failure impinges upon the most pressing daily problems which the urban poor experience. Finally, it advances a set of guidelines which are not negotiable if the condition of the urban poor, both of this and future generations, is to be substantially improved. The paper concludes by briefly exploring the interdependent implications of change in physical urban structure and broader changes in political, social and economic relationships.

Before proceeding along this path, it is necessary to advance three perspectives on the comment to come, in order to orientate the reader.

Firstly, the paper is essentially concerned with ideas and concept formation. While there has been a certain amount of urban analysis in the past, it is often difficult to see precisely what the implications of those analyses are for city building practices or policy formation. This paper is a start, therefore, to bridging that gap. While the main arguments advanced here are specifically formulated with the South African context in mind, many of them
have applicability for most settlements, and particularly those which are primarily populated by low income people.

Secondly, the focus of this paper is the physical structure and environment of cities. This should not be taken to imply that changes in the physical environmental arena would be sufficient to substantially improve the condition of the urban poor, or would somehow remove urban poverty. Clearly this is not the case. Similarly, it should not be taken to imply that issues of physical structure are unaffected by social, economic and political alignments and relationships or that the environment is somehow immune to, or insulated from, broader societal dynamics. Equally clearly, this, too, is not true. There are, however, a number of reasons for adopting this focus.

One is that while improvements in city structure are not sufficient conditions for an improvement in the position and quality of life of the urban poor, they are necessary conditions. As will be argued below, structural changes in the political economy will not necessarily bring about adequate improvements to the quality of life of most city dwellers.

Another is that the physical environment outlives any one generation of users and thus must be able to transcend social and political changes. Each generation, in effect, inherits an historical legacy of urban stock, which, in reality, it has to accept: very few societies can afford the luxury of blowing up large amounts of existing capital infrastructure in urban areas in order to rebuild in a new image. In a very real sense, therefore, environments built today will have a profound effect on the degree to which significantly positive social and political changes can be implemented in future years.

Finally, class and other power struggles at any moment are not abstract phenomena. They occur around concrete issues affecting the daily lives of people. In most urban areas, and this is increasingly the case in South Africa, many of these issues relate to the physical environment and its impact on daily living. Further, while the physical environment which results at any historical stage is the outcome of the interplay between a complex set of forces, influences and interests, that outcome is neither deterministically
derived not definable. It is therefore extremely important that the people most affected by the outcome, as well as those professions which are societally charged to concern themselves with settlements, and which thus have an ethical responsibility to the inhabitants of those settlements, are clear about what constitutes a positive path forward. Forearmed with the awareness, it is possible to intervene in city-forming processes in a positive way.

Thirdly, this paper is essentially concerned with establishing guidelines for new urban development. Many (indeed, the majority) of existing urban environments - and particularly low income environments - perform extremely poorly. In a great many (though it is important to add, not all) cases, it is impossible to improve their basic performance radically. In these cases, the best that can be achieved is relatively cosmetic, remedial improvements. These improvements are both necessary and important. The greatest imperative, however, is to introduce a new mode of city building which is capable of guiding rapid urban growth in such a way that the preconditions for high-performance local environments occurring are maximized from the outset. Environments of this kind will have the capacity to promote and to accommodate future economic, social, political and technological change; they will maximize the opportunities which the settlement offers to the benefit of all inhabitants, both existing and future; and they will use resources in the most efficient way possible.

2. PERFORMANCE MEASURES

(i) The Basic Unit of Performance Measurement

The starting point of such an exercise must be the definition of criteria of city performance and this, in turn, demands the determination of a basic unit of measurement.

The primary unit of performance measurement of any urban area is the range of opportunities, experiences and activities to which inhabitants of this settlement have easy access. Historically, the genius of urban areas has always been that agglomeration enables a range,
variety and richness of activities and opportunities which are simply not possible in more dispersed and less specialized forms of development. Complexity and intensity of activity form the hallmark of positively functioning urban environments.

The term 'easy access', as used in the above definition, requires some elaboration. Specifically, it has implications for how the interrelated concepts of means and technology are viewed.

'Easy access' is clearly a means-related term: it does not mean the same thing to the more wealthy and to the poor. The rich have the means to overcome constraints of access: the marginal cost of overcoming access-restricting barriers, such as distance, is very low, while the equivalent cost to the poor, who perpetually sit on a knife-edge of critical trade-offs, is very high.

At the most basic level, therefore, 'easy access' must be defined in terms of mobility of the poor. If essential city facilities and opportunities are so located and dispersed through space that they are easily available to the poor as well as the more wealthy, the entire system is richer. In this case, additional means are a bonus: they will enable the satisfaction of a different set of desires, but wealth does not become a pre-requisite for survival.

Similarly, 'easy access' has implications for movement technology, which in turn, is informed by means: the higher the disposable income of individuals or families, the greater their access to private means of motorized transportation and thus the less the friction of distance.

There is a profound implication which results from this simple observation. When settlements are made according to the dictates of private, motorized, transportation (in effect, the car), and this is precisely what is happening in all major South African cities, those settlements will, by definition, increase poverty and inequality (both of income and of opportunity). By effectively removing the constraints of distance on a differential basis, this mode of transportation enables a new set of considerations, particularly the endless search for cheaper
land beyond the fringe of the existing settlement, to dominate the form of city development, to the detriment of the poor.

To recast the above in terms relevant to the definition of a basic unit of urban performance: the basic measurement of 'easy access' is access by people on foot. As urban scale increases, and higher order facilities and activities emerge, access to these must be defined in terms of people using public transportation.

The above should not be taken to mean that urban areas should not accommodate technological advances such as the motor car, which increase the mobility of individuals. However, when environments offer access to all essential facilities, services and opportunities to people who themselves only have access to the cheapest forms of movement technology, different, less spatially restrictive, technological forms are again a bonus rather than a necessity.

Positive environments, therefore, offer everyone, including the poor, easy access to necessary urban facilities, opportunities and activities. The most positive environments are those which offer the widest range of choices. History reveals that environments exhibiting these qualities are resilient to change: they can accommodate social, economic, political and technological change, and will always work well for their inhabitants. Conversely, environments which are built according to the dictates of more ephemeral, changing, conditions, be they technological (for instance, the car), or political (for instance, the Group Areas Act), cannot accommodate that change: they constitute a waste of resources and are a negative inheritance to future generations.

It is now necessary to define the opportunities to which people are entitled in urban places in greater detail. Broadly, these fall into two categories: access to nature and natural, undeveloped conditions; and access to the opportunities of urbanity.

(ii) Access to Nature and to Natural Conditions

Access to unbuilt, natural environments is a pre-requisite for positive
human and urban development. There are two main aspects to this.

The first relates to the individual and his growth. Not only is this type of contact essential for personality development (to establish more balanced perspectives and so on), it also directly affects the enjoyment and use of the urban environment itself: life is enriched by contrasts. To be able to escape the intensity of urban living deepens appreciation and enjoyment of the opportunities which that intensity brings.

The second is economic. Despite the large scale importation of food and other commodities into cities which occurs today, urban areas and their agricultural hinterlands still form interdependent systems: the survival of each depends upon the other. Urban areas, in feeding themselves, provide markets for agricultural surpluses and, in turn, supply essential services to those hinterlands. The greater the dislocation between an urban area and its agricultural base, the greater its inherent instability.

This interdependence is particularly important in the case of urban areas populated by low income peoples. Firstly, the price of basic foodstuffs is directly related to the degree of access of the poor to food wholesalers. When the wholesaling system is highly centralized (that is, when food is brought considerable distances to a centralized point or points) the role of middlemen in the distribution process is increased (often three or more tiers of middlemen operate) and prices escalate accordingly. When, however, there is fairly direct contact between consumer and wholesaler, prices are significantly lower. Related to this is the oft-raised issue of the 'stimulation' of the informal sector in third world cities. The experience of many Asian and African cities suggests that one of the few genuine ways to stimulate very small operators of this kind (that is, to cause an increase in both the numbers of operators and their rate of capital accumulation) is through manipulation of the food wholesaling system. Food is, in most third world cities, the primary commodity sold by petty commodity traders. When the food wholesaling system is decentralized, wholesale distribution points inevitably generate an enormous amount of food retail activity: the informal sector provides the
most efficient distribution network to carry food-stuffs into local areas. Distribution occurs via very small selling lots and there is considerable diversification between, and specialization of, small traders within the local areas themselves. The greater the degree of centralization, however, the greater the tendency of consumers (poor as they are) to travel considerable distances to gain advantages of multiple good buying and comparative shopping in the larger facilities of the formal sector, thereby increasing tendencies towards monopolization; or, conversely, the greater the tendency for the distribution network to be controlled by more wealthy middlemen.

Access to nature, therefore, is an essential entitlement of urban dwellers. It must be emphasized that 'nature' in this sense does not refer to small parks or formally defined 'urban open spaces'. To a large degree, this kind of provision is simply an overt recognition of the loss of, and a poor substitute for, genuine contact with nature and with the agricultural base of urban settlements. The way of thinking advanced here, therefore, denies the dichotomization of 'urban' and 'rural'. Rather, it sees the two as existing along a continuum of emphasis, with each being an essential part of the other: agriculture is an essential urban land use; urban settlements are an essential feature of rural life.

(iii) Access to the Benefits of Urbanity

The second basic right of urban dwellers is access to what may be termed the benefits of urbanity: that is, access to all of the opportunities, activities and facilities which can be generated through the power and energy of large numbers of people living in close proximity to each other.

This definition implies two things. Firstly, that the potential powers or possibilities of the urban system are released and realized. For this to occur, the urban system must operate as an interdependent whole: each part must reinforce the others and must contribute to the whole. The genius of positively functioning urban areas is that individuals or groups can benefit from a level and range of services,
activities and opportunities which cannot be generated by the individuals or groups themselves. This type of interdependence is particularly important when large numbers of urban dwellers are poor: when the urban system is functioning positively, the poor can benefit from many of the services and facilities which, to a greater or lesser degree, are dependent upon the resources of the more wealthy.

Secondly, it implies that all have access to the opportunities and activities which are generated. Again, this 'access' has spatial, technological, and individual resource or means, implications.

The most essential collective benefits referred to above group into a number of broad, interdependent categories: utility services (particularly clean water and adequate sewerage), work, trading, educational, recreational, social, cultural and civic opportunities. Clearly, the degree to which individuals and groups have access to these has a direct influence on their quality of life and upon patterns of urban poverty and inequality. The differential costs associated with overcoming access to them for different groups in large part determines the degree to which urban living aggravates problems of poverty and inequality.

Three interrelated points need to be stressed at this stage.

Firstly, the categories referred to above cannot be viewed in isolation from each other. Urban living is a complex, multi-dimensional process: activities are not carried out, nor needs satisfied, on an individual, one-to-one, basis. If life is to have any meaning, the man who spends eight or nine hours at work needs opportunities during this period to recreate, to socialize, to shop or whatever. Shopping trips are not exclusively concerned with trading - they are also major opportunities to socialize and to partake in leisure or cultural activities; education is not simply a process that occurs in formal educational facilities. A child's development is, in large part, determined by the richness of its experiences: the way 'school' interconnects with other aspects of living has a profound effect on that experience.
The implication of this is that, by definition, positive environments are complex and integrated. Different activities cannot be spatially specialized and compartmentalized, with each activity requiring a separate journey; rather they must be integrated into the richest possible total experience. Conversely, uni-functional environments are, by definition, sterile, monotonous and inefficient: environments which simply 'die' at particular times of the day or week, when the dominant use is not in operation, waste urban resources and add little to life. The excitement resulting from the unexpected, therefore, is an essential part of urban performance.

Secondly, the term 'activities' should not be confused with 'facilities'. It is neither possible nor desirable that each different activity of urban life utilizes a separate facility. Different activities make different demands on space and have different time-cycles of engagement. A hallmark of positive environments, therefore, is that facilities, and, in particular, urban spaces, are multi-functional. This, in turn, demands that they are not so specific in their making that they can only accommodate the demands of one activity: they need to be made with a generality and a generosity which allows them to be adapted to many uses. This quality is essential for the efficient use of urban resources: it is also an essential support to the multi-dimensional environments discussed in the previous paragraph.

Thirdly, urban performance cannot simply be described in terms of functional relationships. There are sensual and social dimensions of environments which transcend purely functional considerations. Certain environments exhibit qualities which enrich existence: experiencing them itself constitutes a social and recreational experience. Others cheapen and depress human experience and degrade dignity. The achievement of positive qualities of this kind has nothing to do with individual means: indeed, this type of experience is often found in low income areas. Further, it is not related to the private activities or structures in urban areas. It derives essentially from the public spaces and the degree to which they accommodate and enrich life. By definition, positive spaces of this kind are social spaces: by definition, too,
they are multi-functional spaces. They are constantly used by people for informal social purposes and accommodate a variety of activities, as opposed to sterile spaces reserved for specialized activities. The example of a road can be used to illustrate this distinction. When 'road' is simply a specialized channel to facilitate the movement of cars and other vehicular traffic, it adds little to urban life. When, however, it is made in such a way that it accommodates other informal demands made upon it, such as children playing, or people meeting, and positively contributes to those experiences (by, for example, having a scale to which human beings relate, having a sense of enclosure, being protected from the wind and so on) it is more than just a road: it becomes a social space and plays an integral part in urban life.

The creation of enriching social spaces, though important in all cases, is critical in accommodating large numbers of low income people. When people are poor, there is no way in which the locus of (very limited) individual or family resources (the house) can accommodate the full range of a family's needs, regardless of whether the house is constructed by the state, through self-help processes, or whatever, and regardless of whether or not it is subsidized. Overcrowding and a general lack of space are givens in conditions of poverty. In these situations in positive environments, it is the public spaces, which are the focus of community resources, which act both as the locus of community life and as extensions to the private unit: they are places where children play, lovers court, students read, and the old meet. If positively made, these spaces have the ability to lift people out of the rut of their daily existence and enable them to escape the rigours of poverty. If they do not exist, such escape is impossible and environments make continual assaults on human dignity.

3. CHARACTERISTIC FORMS AND PERFORMANCES OF SOUTH AFRICAN URBAN AREAS

A. CHARACTERISTIC FORMS

Against this background, it is now possible to identify the dominant forms and structural characteristics of South African cities and to evaluate their performance against the criteria established above. To do this, the most complex cases, the largest cities, are utilized. To a greater or lesser
degree, however, most settlements exhibit some, or all, of these characteristics.

(i) A sprawling, low density, urban periphery.

All South African cities are growing primarily through the expansion of new housing areas beyond the existing urban fringe in a relatively haphazard fashion. The urban periphery thus consists of a series of discrete pockets of almost exclusively housing developments. Each pocket is isolated and separated from others by freeways or buffers of open space.

Two distinct processes of development can be identified: those relating to higher income (primarily White) housing and those relating to low income, primarily Black, housing. In the case of higher income development, the main agents of growth are property developers. The search for land is primarily dominated by three factors: the availability of land for sale; the ability to gain developmental rights; and the desire to develop the 'best' agricultural or scenic land, since this land commands the best prices. This search, in turn, is underpinned either by speculative buying or by a clientele with personal means sufficient to ignore the costs imposed by additional travel or by developing virgin land.

In the case of low income communities, the primary agents are usually state or local state authorities (particularly municipal or divisional councils, the Department of Community Development or the Department of Co-operation and Development), or squatters. In the former case, the choice of land is largely determined by political considerations (particularly the dictates of the Group Areas Act) and the ability to gain access to large parcels of undeveloped land, since undeveloped land parcels make preliminary engineering works easier. In the case of squatters, as is well illustrated within the KwaZulu boundary of the Durban metropolitan area, the choice of land is largely determined by its availability and the perceived possibilities of evading harassment by authorities. A characteristic of the South African city, therefore, is the presence of a large urban periphery, extensive sectors of which are almost entirely populated by low income people. It is important to stress that while the peripheralization of the urban poor has, both historically and presently, been aggravated by Group
Areas removals and the designation of land under the Group Areas Act, this act is by no means the whole problem, nor will the problem cease if the act is repealed. It is a demographic inevitability that the majority of future population increase in South African cities (both through natural increase and migration) will occur amongst the poorest people and these people will have no option, because of the pattern of land availability, but to seek land at and beyond the urban fringe, if the present form of development continues.

A particular characteristic of housing on the urban periphery is its low density. A major reason for this, particularly in low income areas, is the dominant mode of planning thought which unquestioningly espouses the philosophy of 'one man, one plot' and which equally unproblematically accepts the domination of the motor car, even though the ability of the majority of inhabitants to afford cars is limited: the values and the freedoms of the upper and middle classes deeply pervade almost all planning practices.

(ii) Different uses tend to cluster in large areas which are, through the reinforcement of zoning, almost exclusively reserved for them: there are thus separate industrial areas, commercial areas, educational areas, residential areas and so on. Although the different areas are linked to each other by transport routes, there is little or no integration of activities in the experiential sense. Cities are thus made up of 'blobs' or islands of specialist activities.

(iii) Further, specialist elements of the city are managed largely in isolation from each other. Thus, separate agencies and organizations make decisions about commercial areas, industrial areas, schools, universities, technikons, railways, roads, freeways, hospitals, fire-stations, housing and so on. While there may be a certain logic relating to decision-making about each element, that decision-making does not occur within a co-ordinated framework directed towards the optimum functioning of the city as a whole. There is little reinforcement between different parts of the city: there is no thought about to what social ends city management should be directed.
(iv) There is generally a correlation between higher order commercial, recreational, cultural and social facilities and higher income (and thus primarily White) residential areas. Further, as the low income periphery has grown around these areas, the pattern of dominance and centrality has been reinforced. Each successive pocket of residential development is tied back into the original structure by the transportation network and few new opportunities for a more decentralized, integrated, structure emerge. A characteristic of the urban periphery, therefore, is that it moves further and further from the major urban opportunities and facilities.

(v) The movement network, is largely reactionary: it simply responds to, and reinforces, existing urban patterns of activity. Most significantly, that network is not consciously manipulated, nor does it operate as a significant city structuring element: that is, it is not used to create alternative patterns of opportunity. Different modes of transport are uncoordinated and more intensive activities are prevented from locating along movement channels. The movement channels, therefore, simply reinforce a limited number of existing points, and more intensive activities, which are dependent upon public support and exposure, must compete for sites at these points.

Further, the network is dominated by specialist channels reserved for the movement of motor cars.

(vi) Because of a lack of clear physical structural signals to guide new development, when operators in the secondary or tertiary sectors break away from the confines of the historical pattern of development, the location of new plant is almost entirely informed by a set of factors relating to the self-interest of the activity in question (for instance, cheap land), rather than by the interests of the city at large. The propensity for this dislocation to occur is increased by the ability of the car to overcome the friction of distance and by the scale of capital involved. Investment occurs on a scale sufficient to bring markets and suppliers to it, rather than it having to respond to the existing pattern of markets and suppliers. Again, however, this form of development only operates to the benefit of the more wealthy: the poor remain largely unaffected by this new pattern. Consumers have no easy
access to the new facilities: small producers and distributors do not operate at a scale anything like sufficient to open this option up to them.

(vii) The dominant process of city development is the creation of massive, low income, housing estates, which are entirely planned and designed by a very limited number of people. Because of the scale of development, primarily large scale contracts are awarded and, consequently, are distributed amongst a very limited number of firms with sufficient capital back-up to undertake contracts of this size.

How well do these characteristic urban structural patterns and processes perform in terms of the criteria advanced earlier? To answer this question, it is necessary to examine the position of poorer people living within the residential pockets of development on the urban periphery.

5. PERFORMANCE EVALUATION OF THESE FORMS

(a) Ease of Access to Nature

In terms of this criteria, very few people have access to nature or to the agricultural base of the city. There are a number of aspects to this. Perhaps the most significant is that, as the urban fringe sprawls inexorably outwards across a broad front, existing urban dwellers, by definition, are further and further removed from undeveloped land: the location of the urban dweller is static, but the urban edge is continually moving outwards. Further, because of the sprawling, low density nature of that development, regular and efficient links to the countryside via public transporation services cannot be maintained. The larger the city growth, of course, the worse this problem becomes: the spectre, reported in large cities elsewhere in the world, of generations of children growing up without ever seeing farm livestock, becomes increasingly possible. The official response of authorities to this perceived inadequacy is the creation of 'open space', statutorily defined as 10% of the area being developed. In reality, this is simply dead land: it maintains no effective production; it can only be used (if it is used at all) for a tiny percentage of the week; in practice, the land allocated for it is simply residual land which has the least potential for productive allocation to other purposes. Most importantly, for it to be in any way positive, it requires massive amounts of maintenance, which neither the local authority nor the
community can afford to give: in practice, therefore, these spaces become dumping ground for rubbish, the stamping grounds of gangs and sites of rape and assault.

This phenomenon of the moving city edge also has profound implications for agricultural production.

Firstly, agricultural land is sterilized at a rate far in excess of the rate of utilization of land for urban purposes. The reason for this relates primarily to uncertainty of expectation. As the fringe approaches, the expectation of farmers of being overtaken sets in: they are thus loathe to re-invest in the quality of the land; short-term, land exploitative, practices are introduced and the quality of land decreases. After a time, the fear that farming will no longer be profitable becomes a self-fulfilling prophesy, even if the area of land under production has not yet been reduced by urban encroachment. Alternatively, farmers sell out to speculative buyers or themselves pursue short term capital gains by seeking developmental rights. The land most susceptible to this process is that which lies between front-running pockets of development and the main urban fringe (caused by the pattern of leap-froging sprawl). The impact of this decline of local agriculture production is usually met by the importation of produce on a national scale. In all South African cities, the percentage of produce supplied by non-local producers is increasing significantly.

Secondly, there is a qualitative dimension to the pattern of imposition, with smaller producers being the worst off. As the urban fringe expands outward, the cost of getting produce to the market increases significantly. Small producers, who anyway have the least margin to absorb rising costs in other spheres of production are, of course, the hardest hit. Increasingly, these producers are either going out of business completely, or are falling under the control of middlemen, who organize the collection and marketing of the produce of a number of small producers but who take a significant cut off already marginal and erratic profits.

This phenomenon of the increasing dislocation of producers from markets, of course, encourages the centralization of food wholesaling systems, and thus, in the manner described earlier, restricts the emergence of a
network of small distributors.

A special, but very significant, case of the sprawling fringe and the consequent lack of local markets, is that of low income, peri-urban households engaged in very small-scale agricultural production, either as a dietary supplement or as a supplement to family income. Perhaps the clearest example of this type of activity is found around the Durban metropolitan fringe in areas such as Umlazi and Inanda, where mealie and some vegetable growing occurs on house plots and (or, more usually, extending into) public land. The degree to which this type of activity supplements income is determined by the degree to which very small and erratic surpluses can be sold. In most cases, because of the sprawling, low density nature of the fringe and the distance and difficulty of access to significant gathering points of people, (for instance, at the stations), the effective market of the household is restricted to immediate neighbours, who are usually growing the same crops in any event: they thus do not constitute a market unless their crop has failed. In large part therefore, the income supplementing potential of this type of activity is negated.

Another problem of the moving urban fringe is that there is a qualitative dimension to the pattern of land destruction: the most valuable land, agriculturally, ecologically and visually, is the land most susceptible to urban encroachment. Almost by definition, the most valuable land agriculturally or environmentally is perceived by the individual to be the most desirable land residentially. Consequently, in the case of higher income development, it is this land which is most susceptible to erosion: there is a systematic process in motion of destroying, through development, precisely those features of the landscape which made it desirable or unique in the first place.

Although this assault on qualitatively valuable land is most pronounced in the case of higher income developments, it is by no means restricted to these. In the case of low income developments, the difficulty experienced by developing agencies in gaining access to very large parcels of undeveloped land (sought for engineering and administrative convenience) means that ecological or environmental dictates are usually ignored. Mitchell's Plain which is developed over an aquifer, and Khayalitsha, which is located in one
of the richest small fauna areas of the Western Cape, are examples of this in the Cape Town Metropolitan Area. For whatever reason, therefore, the heritage of future generations is inexorably destroyed.

(b) Ease of Access to the Benefits of Urbanity

The dominant form of urban development not only creates problems in terms of access to nature: it also profoundly and negatively affects the ability of people to benefit adequately from agglomeration. The following brief exploration of this will be structured in terms of some of the major opportunities and benefits to which people should be entitled in urban places.

(i) Access to Shelter and Essential Utility Services

The problem of assisting the poor to gain access to adequate shelter and essential utility services, such as clean water and sewerage disposal, is, internationally, a thorny one. Significantly for this discussion, however, the dominant form of urban development has very important implications for costs. The key to cost saving lies in the efficient use of infrastructure and this, in turn, demands an integrated form of development. When the dominant pattern of development is a sprawling, low density one, characterized by discrete, isolated and low density pockets of development, it is impossible to utilize capital infrastructural investment to maximum capacity. In effect, each pocket requires its own main-structure, or extremely long (and thus expensive) underground linking runs to existing systems. Since costs are ultimately either directly or indirectly passed on to the user, the system directly aggravates problems of poverty and inequality.

This problem of service provision is graphically illustrated in the case of Durban where a sprawling, low density squatter periphery has emerged in advance of service provision. The cost of providing even clean water within reach of all dwellers is simply prohibitive in the short term: the consequences, however, measured in such terms as the incidence of water-borne diseases (for example, typhoid),
are devastating.

Construction costs, too, are substantially affected by the pattern of development, regardless of the system of housing delivery utilized. The further materials and machinery have to be transported to construction sites, the higher the cost.

Not only costs, but even the choice of delivery system is affected by the pattern of development. In situations where local materials, such as clay or timber, are not available on site, for example (and the Western Cape is one such case), it is absurd to talk of utilizing self-help methods. Given the isolated nature of development, essential back-up infrastructure, such as a network of small builders or suppliers of locally plentiful building materials is simply not available: attempts to enforce self-help delivery in cases such as this can only be exploitative.

(ii) Access to Work Opportunities
The primary barriers to access to work which the poor face in South African cities, of course, are not spatial, but lie in economic, political, legal and educational arenas. Nevertheless, spatial barriers are considerable in their own right and significantly and negatively affect both quality of life and the extent and scale of poverty and inequality.

For those of the urban poor who have jobs in the formal secondary and tertiary sectors of the economy, the major problem is overcoming distances to and from work. Effectively, as growth occurs, the urban periphery expands outwards without any significant adjustment occurring in the spatial distribution of employment. Spatially, economic activity primarily responds to changes in patterns of urban accessibility. Because of the amorphous, low density nature of growth, few significant new accessibility peaks emerge. Accordingly, new development is simply tied back into the existing pattern, with the result that people have further and further to travel to and from work and increasing pressure is placed both upon existing transportation infrastructure and upon the employment centres themselves.
The costs of this system to the commuter are massive, both in monetary and time terms. Often the poor have to travel in excess of 40 km each way, and spend over 30% of salary in travel costs.

In terms of time, many rise at 4.00-4.30 am. to start work at 7.00 am. and only return home at 8.00 pm. at night. The consequences are severe. Social life is nil. Life is an endless cycle of sleeping and working. Parental supervision of children is a major problem; lethargy and a reduction in productivity follow axiomatically; and so on.

Society at large also pays heavily for this pattern. One inevitable consequence of it is huge energy consumption, increasing congestion and, concomittantly, increasing pollution. Further, it demands heavy infrastructural outlays. On the one hand, short term actions must be initiated to attempt to alleviate congestion. On the other, existing infrastructural capacity is inefficiently utilized, since, at any point in time, major movement flows are uni-directional: they flow towards work places in the mornings and away from them at night.

The work places themselves are largely uni-functional and sterile: they are simply places where people sell their labour. In most industrial areas, for example, there is nowhere for the worker to shop, or browse, or kick a ball, during his lunch break: often, there is not even a place to buy a sandwich.

Significantly, the excessive structural pressure placed upon a limited number of places increases their uni-functionality and monotony. As pressure on land increases, smaller, non-conformist types of activity are priced out by the land market and uses within the area become increasingly uniform. The pattern also directly fuels land speculation. Because of the restricted number of really viable areas, speculators can hold out in the confident expectation of high windfall profits.

Difficulties facing small entrepreneurs seeking to run their own businesses, too, are severe. On the one hand, they are too small to break away from the existing pattern of opportunities (defined largely by the pattern of accessibility); on the other, they are priced out
of the limited number of central locations which are really viable. They are thus forced to operate from inherently marginal sites.

For those who do not have access to jobs in the formal sector, one of the few survival options open lies in petty commodity production, trading or service delivery. These operators face the same kinds of problems, on an even greater scale. Because of their small size and fragile, often periodic, nature, they are best served by clipping onto the major city flows. It is precisely from those points where flows concentrate, however, that they are most effectively excluded, either by their inability to afford access to space or by harassment (usually initiated by opposition from formal businesses). Because of their lack of mobility, many of these operators are forced to operate from their local residential areas. Even within these, however, densities are so low, and so few locations offer genuinely viable opportunities, that operators are trapped in a perpetually marginal condition: capital accumulation in these situations is almost impossible.

(iii) Access to Commercial Opportunities
A similar pattern exists with respect to commercial opportunities. The order of commercial centres depends not only on the size of threshold they command, but also upon the characteristics of available capital.

Higher order goods are dependent for support upon 'luxury' capital: accordingly, there tends to be a correspondence between their location and the location of higher income groups (which, in the case of South Africa, largely means White groups). In South Africa, therefore, there tends to be a correspondence between higher order commercial centres and White areas.

As the low income, low density periphery spreads outwards, thresholds are dissipated and equivalent scaled facilities do not emerge. Consumers from these areas, therefore, are either forced to travel considerable distances to larger centres for their requirements or, where
this is possible, to purchase them locally. Either way, costs are substantially increased, either by incurring considerable travel costs or by paying higher prices for purchases. The price of commodities in many of these outlying areas is 30-40% higher than in the larger centres, primarily because of a lack of competition and resulting monopolistic practices.

Further, the low densities effectively prevent a dense, fairly ubiquitous, pattern of very small traders operating out of homes (a pattern which would maximize convenience and provide competition) from emerging.

A case which illustrates both this and the previous point is that of Durban. Over time, a sprawling, low income, low density periphery made up of both formal housing estates and squatter encroachment, has spread ubiquitously over the hills surrounding the Central Business District and the initial industrial areas. Because of the low density nature of this development, few new points of centrality have emerged. Consequently, the transportation network has tied each successive stage back to the historical centres, which are the major employment focii of the region.

Significantly, and despite the large distances involved, the C.B.D. remains the major commercial focus as well. Astonishingly, over 60% of all produce released from the National Fresh Produce Market (the central food wholesale market) at Clairwood is redistributed through the squatters market, which is located at the junction of Berea Road Station and the major terminus bus(1) and which is almost exclusively patronized by a Black and Indian clientele. It is estimated that 42% (over 750,000 people) of the total population of metropolitan Durban relies on the squatters market for at least part of their food supply (2) and the market forms the major source of supply for the limited number of much smaller informal markets (such as that at Kwa Mashu station) within the residential areas. Even more astonishingly, some 78% of customers to the squatters market make separate shopping trips (that is, trips not associated with journeys to work) to it, primarily because prices are so much cheaper there (1).
This centralized pattern, however, opens few opportunities for informal sector traders, the majority of whom are engaged in the food sector. Apart from a very limited number of opportunities around the stations, bus stops or road junctions within the residential areas, and in the industrial areas, the only really viable opportunities lie in the centre, connected to the Squatters market. It is precisely here, however, that the call for control by vested interests is highest and the practice of control is easiest, because of the ease of detection.

(iv) Access to Educational, Social, Cultural and Civic Services

The situation in relation to these services is similar to that relating to commerce. Most of the higher order facilities which should serve the city at large are located in relation to higher income, usually White, areas and physical access to them by the poor (even if legal access is possible) is extremely difficult and costly. In terms of lower order facilities, such as schools, clinics, community centres, churches and so on, each area is, because of the discrete and isolated nature of the pockets of housing development, supposed to be self-sufficient. The population of each is thus supposed to generate and support a full range of facilities. Given the sprawling low density form of development and the high levels of poverty amongst inhabitants, this is clearly impossible, yet there is no reinforcement between one community and another. The result is that communities are, by definition, under-serviced and are trapped into a perpetual cycle of debt (3). Obviously, in situations such as this, the prospects of effective decision-making autonomy, dependent as they are upon genuine financial autonomy and access to resources, are almost nil.

The difficulties associated with social service provision are aggravated still further by two dominant planning attitudes. The first is the separatist view of urban activities which leads inevitably to an approach which defines every activity in terms of facilities. Thus, the need for civic or community gatherings equals the need for a
community hall; education means school and school is exclusively reserved for educational activities; schools play sport and thus require fields which are reserved for school use; the need for informal recreation means open space; markets, if such need is perceived, requires a separate facility; and so on. In terms of any community, this type of thinking is absurd: in terms of low income communities, the consequences are particularly severe. On the one hand, of course, it means that, because separate facilities cannot, for economic reasons, be provided for every activity, no allowance is made for many essential urban activities at all: the ability of positively made urban space to accommodate many activities has totally been forgotten. Further, the complex reinforcement of one activity by another, which is one hallmark of positive environments, is totally denied in this approach. On the other hand, because of the one-to-one equation of activities and facilities, and the corresponding denial of informality or spontaneity, the facilities themselves can be, and are, used on a discretionary basis to exclude certain groups.

The second dominant planning practice is the tendency, within each pocket of development, to imbed certain social facilities within local communities. Schools are a common case in point. The attitude underpinning this practice seems to be a naive conceptualization of the concept of community: a belief that urban communities are simple, discrete and spatially defined phenomena and that healthy community formation is somehow promoted by such actions. In fact, these practices are socially negative and extremely inefficient in terms of resource utilization. On the one hand, they deny the robust and diverse cross-fertilization which is a feature of urban social life and learning, and which is dependent upon exposure. On the other, their very imbeddedness reduces their viability and their ability to withstand change. For example, to continue the case of education, one characteristic of cities with large housing backlogs is that there tends to be little movement through the housing stock: once people gain access to shelter they hold onto it at all costs. As the age (and thus the social) profile of communities change, the demand for certain facilities changes too. As communities age, for example, pressure on schools reduces.
If the facility is imbedded within a local community, its fortunes are tied to that community: the phenomenon of massively overcrowded facilities in some areas and underutilized ones in others, is thus common in all South African cities. If, however, these facilities are exposed, in that they are located on major links tying communities together, their resilience and their effectiveness is greatly increased.

(v) Access to Public Transportation

It was argued above that easy (and thus cheap) access to public transport is an essential right of urban dwellers: moreover, it is a right which is particularly important to the poor. Continuing community protests over incessant public transportation price increases, calls for better levels and conditions of service, suppression by authorities, in collusion with the owners of public transportation systems, of pirate taxis, and so on, reveals clearly that in all South African cities, the public transportation service is neither adequate nor cheap.

The reasons for this are complex. Two points of direct relevance for city building and management, however, are perhaps amongst the most important and need to be clearly made.

Firstly, viable public transportation systems, particularly fixed line systems, require considerable thresholds of support. In a great many cases in South African cities, densities are simply too low to allow for an efficient service to exist. In most cases, while some service lines are viable, many others are not.

Secondly, the concentric, outward, low density sprawl from one, or a limited number of central points means that, by definition, public transportation systems, and particularly fixed line systems such as the train, cannot serve urban dwellers on the edge of the periphery efficiently. It can be geometrically shown that as the fixed lines move outward, the distance to be travelled to a terminus by commuters located in the interstices between lines increases exponentially (fig. 1).
Given these two factors, public transportation systems are, and will continue to be, inefficient and costly. The impact on the urban poor is massive. Costs (both in monetary and temporal terms) are high, not only because of inefficiency and continual increases in unit travel costs, but also because most commuters using public transport have to use, for each trip, at least three modes of travel (walk to the bus, bus to the station and so on). Often, too, within modes, journeys require line shifts. Since different modes are largely administered, managed and priced independently of each other, the price staggers in favour of longer trips are negated by the imposition of minimum charges by different modes.

Even more importantly, the inability of the public transportation system to serve many of the urban poor has forced a great many people into a dependence upon the motor car, which is by far the most expensive mode and which is one that most people can ill afford. In effect, there is an imposition of priorities occurring which has nothing to do with freedom of choice, yet the increased volumes of motor vehicle usage are employed by traffic planners to justify the continuation of existing patterns.

Related to this, and even more fundamental, is the fact that the reason for trip generation is never seriously questioned. By far the major generator of trips, by whatever mode, is the spatial dislocation between major work, commercial and social activities and places of residence. The most effective way to reduce travel is to alter the relationship between these. The primary pre-condition for this, in turn, is the creation of new centres of accessibility, and the most powerful agents at hand in this regard are public transportation channels. In fact, these channels are not viewed in a structurally innovative sense at all. Different modes are not co-ordinated. Each is simply reactionary, and is introduced post-hoc to re-establish existing patterns. Accordingly, already centralized patterns are continually reinforced; dislocation between residence and other activities increases; and congestion steadily magnifies, with con­committant costs to the commuter. Eventually congestion reaches a point where remedial action (a new station, another bus terminus, another rail line, a by-pass or whatever) is introduced, but the basic problem - the excessive pressure on a limited number of points -
remains unchallenged.

(vi) The Dominant Process of Delivery

As stated above, the dominant process of city development is the creation of massive, supposedly self-contained and independent projects which are entirely planned, designed and (usually) financed and built, by a very limited number of people, agencies or institutions. The consequences of this form of process are severe.

In a physical sense, the inevitable consequence is sterility and monotony, sterility, monotony and environmental boredom are inevitable when the environment reflects the creative energies of a small number of people and processes, regardless of how good the design may be. Conversely, environmental quality demands complexity and complexity cannot be entirely pre-planned or designed. The more the environment gives vent to the creative skills, energies and outputs of a wide variety of people and processes, the better it is likely to be.

Developmentally, too, the process has many negative consequences: it encourages monopolization and the centralization of capital; finance invested in schemes has very limited circulation and primarily finds its way back into the pockets of the more wealthy; potential benefits, which can be generated through the process of doing, are denied; and so on.

Significantly for this discussion, this dominant process is itself encouraged and reinforced by the form of city development which is occurring. At the heart of the problem is the fact that there are no constraints which protect the interests of the city at large, which restrict freedom of action or which generate alternative actions or processes. In each project, internal dictates of efficiency dominate: there is no restraint on how far these are allowed to go and there is no guarantee that there is a correspondence between these dictates and the public good of the city at large.

(vii) An Experiential Measure

Thus far, comment has been confined to relatively functional measures
of urban performance. As stated in the introduction, however, this is only part of the story. Any meaningful measure of urban environmental performance must include the spiritual or sensual poverty or richness which results from the environment as a whole - the environment as it is experienced by the inhabitants.

The overwhelming impact of most low income environments in South African cities is sterility. In large part, they are simply dormitories rather than living areas. People stream out in the mornings and back at night. For those who stay, there is little. Children play in the streets, but it is not pleasant: the streets are usually exposed to the elements, scaleless and unsafe. The old have where to sit or meet - it is difficult to find shade to escape the sun. A few hawkers attempt to scrape a living but, because of the ubiquitous spread of people and houses, it is difficult to find places which offer a brisk trade. Every township, every part of the township, looks the same.

Above all, the public spaces are miserable. People are dependent on these spaces, for dwelling units are massively overcrowded. To establish the scale of the need, one has only to visit Nyanga, or Guguletu, or any other Black or Coloured township on a Sunday. People are in the streets and on the pavements in their thousands. Men work on radios, cars and bicycles, women knit, children play in the streets, the babies are placed on rubber sheets, curved at the end and filled with water to make little pools.

The need is massive. Significantly, however, the only spaces available to absorb these activities are the streets. Public squares and other places of collection and gathering (with all of the selling, entertainment and other activities which inevitably accompany these) simply do not exist. Even though the street spaces are used, they are not social spaces: in most cases they are an affront to human dignity and do nothing to enrich the activities that take place within and alongside them. Designed simply to accommodate traffic, they are, almost without exception, scaleless, exposed and ill-defined.
DEFINITION AND CONTROL OF A FIXED URBAN EDGE

EMERGENCE OF A SPINE HIERARCHY

ACTIVITY RESPONSE

HIERARCHY OF ACTIVITY SPINES

SPACE AS STRUCTURE

CO-ORDINATED RHYTHM OF MOVEMENT

INTERRELATED SYSTEM OF MAJOR SPINES
The primary reason for this sterility is simply that public spaces are no longer considered important. In the increasingly elemental approach to city building, in which each element is considered separately, the specialist requirements of each activity, and engineering definitions of efficiency, hold sway. Generous, properly-formed spaces which can accommodate many activities, without maximizing the dictates of one at the expense of all others, are considered luxuries.

Further, there are no indications that the situation is likely to improve within the foreseeable future. In a recent speech announcing the government's commitment to self-help, the Minister announced that low income communities would have to provide most public facilities (and, by inference, public spaces) themselves. The warning raises the horrifying spectre of cities made up of miles and miles of houses, pipes and roads only. Environmental sterility, already so prevalent, may well reach unprecedented dimensions under the new system.

Perhaps the most invidious aspect of these processes and tendencies is the continual fragmentation which is occurring. Collective action and activity is the essence of urban existence. Physical environments cannot cause collective actions to occur. However, they can mitigate against such activities occurring, simply by not providing outlets within which spontaneous activities can easily take place. The tendency towards individualization in urban areas—towards the isolation of the individual and family—is one of the most pervasive of our time.

4. SOME ESSENTIAL GUIDELINES FOR CHANGE

It has been shown above that the performance of South African cities is extremely poor. The issues raised are not ephemeral, nor are the concerns which underlie them romantic. The environment impinges on the lives of people in very real and concrete ways. Adequate improvements in the quality
of life of the urban poor cannot occur until these difficulties are overcome. Until this happens, urban areas will continue to aggrevate poverty (in both the material and experiential senses of the term) and inequality. Significantly, too, the ability of urban areas to successfully absorb large influxes of people in future years is directly related to overcoming these problems: the carrying capacity of the urban areas, and thus their future role in the country, is at stake.

At the heart of the problem is the marginalization or peripheralization of the urban poor. The central question is, how can spatial processes of marginalization and peripheralization be overcome?

Significant improvements in this regard demand the introduction of the following guidelines. The guidelines outlined here represent the main elements of a publicly-provided urban spatial framework which directs and controls private and public decision making and investment. In toto, therefore, the elements make up the basic building block for city development: the opportunity, of course, exists for many blocks to be integrated in varied and complex ways, according to the dictates of context.

(a) The Definition and Control of a Fixed Urban Edge

The first element is the demarcation of a clear urban edge which may not be transgressed by urban development. In effect, this means absolute control of sprawl.

There are a number of advantages which immediately flow from this. Firstly, the relationship between rural and urban areas is stabilized to the advantage of both. On the one hand, the urban areas provide stable markets and essential services for the rural areas, thereby stimulating agricultural activity. Above all, the security of the relationship prevents the continual destruction of agricultural land through the threat of urban encroachment. On the other, urban areas are primarily fed by local agricultural production, an essential factor in reducing instability and negative dependency. Further, since there is a stable relationship between particular rural and suburban regions, the system favours regional specialization of agricultural production and a
regionalized, de-centralized system of food wholesaling. As has been discussed above, this, in turn, stimulates the participation of very small operators in the food distributive system.

Secondly, the artificial dichotomization between 'urban' and 'rural' is destroyed. Properly, if the edge is controlled, the two exist along a continuum of intensity ranging from intensely urban to intensely rural, with each part being different, but with none being totally denied access to the advantages of others, as in the case at present: thus, urban dwellers still have contact with nature and with productive land, while rural dwellers still have access to urban services and facilities.

Under this system, the defining edge between urban and rural is extremely important. Logically, it becomes the location of essential services oriented towards the rural areas: marketing, finance, agricultural machinery sales and repairs, agricultural educational and research institutions and so on. It also is the location of very small scale peri-urban activity. When the edge is fixed this activity can be conducted viably since the small surpluses can be readily sold to the fairly extensive local market which exists in close proximity.

Thirdly, it allows a solution to the problem of noxious, polluting or space extensive activities. Urban areas, by definition, house certain uses which are inherently noxious or which disrupt the continuity of the urban fabric. Examples of this are airports (the noise cones of which effectively sterilize very considerable areas of land) sewerage works or ponds, large water storage or power systems, large scale noxious industries and so on. The common practice is to locate these beyond the existing urban fringe. Under the prevalent system of the ubiquitously moving fringe, inevitably over time urban development overhauls these uses: they thus either have a negative impact on the lives of the many people living around them (as, for example, is the case with the Athlone sewerage works in Cape Town) or they disrupt the continuity and cohesiveness of the built fabric and effectively sterilize large pieces of land. When the edge is controlled this problem falls away.

Further, the system allows for the creative use of urban resources. An example of this can be found in water and sewerage disposal. Water is one of the most valuable and limited resources affecting urban development in
South Africa. Most large cities are facing the end of predictable water sources within the foreseeable future (in Cape Town, for example, it is estimated that the limit will be reached around the year 2000) and massive investment is occurring to tackle the problem (the reversal of the flow of the Vaal river to increase supplies to the P.W.V. region is a case in point). Some 70% of the entire water consumption of large cities in this country leaves the city as waste: in most cases, because of a lack of a rational system, it is simply returned to the sea. If the edge is controlled, however, it is possible to intelligently re-cycle a significant amount of water and partially treated human waste to increase the productive capacity of agricultural lands.

(b) The Creation of An Efficient Public Transportation Network

A non-negotiable feature of positive, larger, urban environments is that public transportation, which is far cheaper than private forms of transport, is the essential supplement to movement on foot. If this is not the case, cities are, by definition, negatively re-distributive and promote inequality. However, evidence from around the world indicates that if public transportation systems are to be viable and efficient, they must be powerfully and directly supported by large thresholds. Evidence shows, too, that the range of public transportation is limited. If people have to travel much more than easy walking distances to public transportation terminals, they tend to use private transportation and a vicious cycle is set in motion: the lack of support for public transportation results in rising costs and decreased efficiency, which, in turn, weakens support still further. Cities all over the world are calling for increased use of public transportation as they reap the massive (indeed, often unaffordable) costs of the alternative: few, however, have met with any success, for precisely the reasons outlined above. By definition, therefore, if these systems are to work, the urban population must be located around, and within easy striking distance of, them.

If the previous guideline and this one are considered in conjunction, it follows that urban population must be located between two fixes, a constant urban-rural edge on the one hand, and the public transportation system on the other. A number of implications can be derived from this. Firstly the system implies considerably higher densities than exist in South African cities at present. Since both the public transport route and the urban-
rural edge should be in close proximity to all urban dwellers (as far as is possible, within walking range, although this would clearly vary on occasions, given specific topographical or environmental conditions) and since public transport systems require high thresholds, net densities need to be high. However, high densities should not be equated with overcrowding: it is possible to increase densities considerably in South African cities, while improving conditions of privacy, anonymity and so on.

Further, there is a tendency in this country to equate higher densities with an inherently negative condition. Exactly the reverse is true: much higher densities are a necessary condition for greater opportunities, choices, services, facilities and a generally higher condition of urbanity.

Similarly, the concept of higher densities should not be simplistically equated with a condition of uniformly high densities. Obviously, a considerable range of densities, and thus living options, is both possible and desirable: on average, however, densities should be much higher.

Secondly, since public transportation systems (whatever the mode or technology) essentially operate along lines, and since urban development is located between the public transportation line or corridor and the fixed rural-urban edge, it follows that the configuration of the basic building block of urban development is linear, as opposed to the erratically concentric pattern which is associated with sprawl. Only when the essentially linear form is maintained can the related problems of urban development drifting away from public transportation routes towards the urban edge, and the destruction of agricultural land, be contained (6).

This conclusion has profound implications for land management. Since the essential form of the urban building block is linear, it follows that once the path of growth has been identified, future urban land can be clearly identified. Obviously the path of growth is informed by regional and ecological considerations: it demands an assessment of where a region is heading and of what land is the most valuable agriculturally, environmentally, and ecologically, in order to ensure that the path of urban development does not encroach upon that land which should be left to future generations. Once identified, however, it is possible to introduce a synchronized and purposeful management system which makes the best use of available resources.
Finance for infrastructure is a case in point. Under this system, each new piece of development does not have to be fully responsible for the generation of its own utility services, as is the case at present. Since the main utility infrastructure is located on the edge of the development, capital works can be used to capacity before more plant is called on stream. In effect, each main plant in part services historic development and in part services the first stage of new development.

Very importantly, another case is that of land. The system enables the systematic evaluation of the quality and value of land, both in its own right and from the point of view of its potential role in the urban system. By identifying land for development ahead of immediate demand, it enables harmonious and synchronized development to occur. However, there is an important proviso to this. Effective management of this kind demands that the public authority has control over land, in that it can determine the timing of land release and can combat excessive speculation. This is particularly important in terms of land for low income development, where the cost of land is a critical factor in determining the ability of the poor to gain access to it. While control of land does not necessarily imply public ownership it does, in the case of low income development, at the least demand an effective system of land banking.

(c) The Co-ordination of Movement Modes to Create an Hierarchical Order of Accessibility

Within cities, it is primarily movement flows (of people, goods and thus capital) which determine the distribution of the most intensive activities - those activities which are dependent upon accessibility for support. In one sense, therefore, these flows can be seen as the 'glue' which integrates the city into a whole, and the movement and public spaces are the channels which determine how the glue flows: these channels represent the network of opportunities to which entrepreneurs to other decision-makers controlling the location of more intensive activities respond.

From a city management perspective, two dictates relating to these flows must dominate. Firstly, flows need to be co-ordinated and channelled in
order to maximize the power contained in the collective resources of the city. If flows are spread too thinly, they do not create real opportunities: they are simply dissipated. This is precisely what happens in the periphery of most South African cities at the present time.

Secondly, as wide a range and spatial distribution of opportunities as possible should be created. This is necessary both to maximize the convenience of urban dwellers and to maximize chances of survival of both large scale and small scale activities. At the present time, as has been shown above, the reverse pertains. All effective flows culminate in a very limited number of points only. Thus, on the one hand, a large periphery develops, with all of the consequences of inconvenience, aggravation of poverty and inequality and so on, which have been outlined above. On the other, smaller, more fragile activities cannot find a place in the major points of opportunity and are thus relegated to perpetually marginal locations. Most formal planning does pay lip-service (through zoning) to the need for a spread of activities and opportunities. In most cases, however, the pre-conditions for the creation of real chances (adequate flows) simply do not exist.

Significantly, it is not movement per se which constitutes the urban glue, but rather the places where flows congregate or stop: it is thus the pattern of stopping and gathering which determines the urban accessibility pattern and, therefore, the pattern of urban opportunity. In this regard, different movement modes have different characteristics and thus warp space in different ways. Through the co-ordination of different movement modes and their stops and cross connections, therefore, it is possible to create a hierarchy of accessibility points which emit clear structural signals to users of space. This pattern, in turn, is influenced and reinforced by the degree of local residential back-up and support.

(d) The Creation of a Hierarchy of Activity Aims or Spines

The key to this is simply allowing more intensive activities such as work, commercial, cultural and recreational activities to locate directly in relation to the major movement flows of the city. At the present time, this is usually disallowed. Roads and the like are seen purely as specialist movement channels and intensive activities are prevented from locating along them.
In terms of this thinking, the movement channels simply link points in space, and more intensive activities are required to locate at the points. In the words of Marsh, the tendency is to think "blob not line" (7). Communities located along the channels do not orientate outwards to the channel, but inwards upon themselves. In effect, each community is introverted and each becomes dependent upon itself for the activities and services to which its inhabitants are entitled. In these cases, the movement channels do not integrate communities or allow for mutual reinforcement: they simply divide.

Large scale improvement demands a return to thinking "line, not blob": precedent shows that, historically, the dominant structuring tendency in high-performance environments has always been linear.

A number of advantages would result from allowing these activity spines to develop. Firstly, activities themselves (including social and cultural activities) stand the best chance of survival along these routes since flows are concentrated: no activity is simply dependent for its support on the local community since it also benefits from through flows from other communities. Similarly, because of this characteristic, the activity along the spine serves to integrate the city: the spine becomes the place where citizens of the urban area at large meet and mix. It is important to stress at this point that there is inevitably a mutually reinforcing relationship between activities and movement flows. Once a spine is established, activities generate more movement which in turn generates more activities.

Secondly, a linear pattern of activity has the potential to reach a greater number of people than exclusively node-based forms of development. In the former case, activities come to the people; in the latter, people come to activities. The pattern therefore, is more effective in improving convenience and reducing costs of living.

Thirdly, it enables a complex and highly positive integration of activities to occur spontaneously in space.

To illustrate the last two points, it is perhaps beneficial to outline the morphology and growth of a spine of this kind. "Linearity" and "nodality" are not opposites, nor are they mutually exclusive. Inevitably, as a new spine became established, a pattern of 'peaks' or nodes of activity would
develop along it. This is primarily because different points along the line are relatively different in terms of accessibility (because of the rhythm of breaks in the movement flow discussed previously, cross connections to other spines or parts of the city, differential local residential back-up and so on). Consequently, activities with the highest bidding power would create 'pulses' of activity at the most desirable points. Thus, higher order commercial activity would tend to locate where city-wide or metropolitan accessibility is high and where there is a large residential back-up. Space-intensive manufacturing, industrial and a mixture of other activities would occur where metropolitan accessibility is still high but where the residential back-up is less and consequently where land values are lower. Where metropolitan accessibility is reduced, residential, institutional and cultural facilities would come right down to the route. Consequently, the complex integration of a variety of activities would occur within easy reach of a great many people. Further, with the linear form, abutting residential dwellings can maintain a very close relationship with the higher intensity activities, thereby enhancing convenience and opportunities for inhabitants. It must be emphasized that this complexly integrated type of condition would not negatively affect the living environments abutting the routes. Because the route along which the spine is located is clearly the most direct through-route, there is no point in through-traffic leaving it and penetrating the more sensitive residential fabric which abuts it. Because of the structural clarity of the system, the through-route has a protective function and allows for very fine-grained residential fabric to exist in close proximity to places of high intensity activity.

Fourthly, the linear nature of the spine would provide greater opportunity to the small businessman (particularly petty commodity and service operators) and relatively non-competitive functions such as social and cultural facilities. Between the concentrations or 'peaks' of activity, activities, such as these, with lower bidding power could still benefit from the concentrated flows along the spines: in effect, they take up a symbiotic relationship with flows generated by the flow responding to larger-scale generators.

Finally, the linear system accommodates processes of growth and change well. Once the movement channels are established, activities can immediately locate along them and establish a close relationship with the surrounding residential area and with the passing traffic. As growth occurs, activities would
naturally extend along the arm. At any point in time however, a totality of condition is maintained and this operates to the benefit of the residents and the activities. In exclusively nodal forms of development, the prospect of growth is usually handled by leaving vast amounts of empty space around the initial development. This not only reduces convenience but actually impairs the present operation of the existing development, by creating extremely poor environments. This, in turn, may well negatively affect the prospects of the projected future growth occurring at all. Myriad examples of this type of dilemma can be found in low income environments in all South African cities (commonly, for instance, around shopping centres).

The discussion thus far has focused upon the operation of a single spine. In fact, however, what needs to be established is an interlocking, reinforcing and hierarchical network of spines, ranging from spines of city-wide significance, which link many local areas (the Main Road in the Southern Suburbs of Cape Town is an example of this) to local area spines, which may carry little more than social services and small traders and producers. The principle of maximum exposure, however, must pertain throughout. The order of activity spine, of course, is determined by the intensity of flow along it, which, in turn, is affected by the type and the co-ordination of movement modes along the spine and the intensity and scale of activities which locate along it.

A concluding perspective must be placed upon this discussion. While the need is to establish a network of activity spines, in which urban activities and movement flows operate symbiotically, this should not be taken to mean that specialist movement channels such as freeways, should somehow disappear. There is a need for this type of facility. However, they should not dominate transportation infrastructure as is the case at present: they should be supplementary elements. From an urban structural perspective, freeways and limited stopping routes do nothing positive. When they are located within the urban fabric, they simply divide one community from another. As a general principle, therefore, in terms of the model being outlined here, freeways should be located on the edge of development (along the rural-urban edge) or should traverse the rural areas, linking different parts of the city together.
(e) The creation of a system of public spaces to structure urban development and the celebration of these

Positively made and celebrated public spaces (green spaces, squares and other intensely urban spaces, and so on) are the essential social infrastructure of successful urban environments. They are the places through which people experience the city and engage, both formally and informally, in its collective life. They are the primary elements affecting the quality of cities as they are experienced by people. If the spaces are rich and vibrant, poverty does not become a badge: all people can experience the benefits of collective resources and all are equal in relation to those benefits. In these spaces, the poor have a chance to escape the poverty imposed by the inadequacy of their private means: the spaces act as extensions to the private dwelling units. When these spaces are poor, however, the total environment will be poor, regardless of the quality of individual dwellings.

The spaces also play a vitally important role in housing the informal and periodic activities (those activities for which, by definition, specialized infrastructure cannot be provided) which are so important in urban life - public meetings, spontaneous theatre and entertainment, periodic markets, fairs and circuses and so on. They also have an important economic function: they provide the primary vehicle through which petty commodity traders and producers can gain access to central trading and producing areas.

The nature and 'feel' of public spaces is inextricably interrelated with the activities which surround them. The spaces, because of their location and configuration attract particular types of uses and the uses themselves influence both the feel of the space and the way the space is used: thus, they may range from being quietly residential spaces in some contexts to intensely vibrant spaces, oriented towards commercial and entertainment activities, in others, with a wide, almost infinite, range of possibilities in between. Indeed, often they may yield very different conditions at different times, depending on their time-cycle of use.

The design of a positive network of spaces, around which the urban fabric is structured, is thus a pre-requisite for positive environments to emerge.
Two interrelated perspectives must be placed on this. Firstly, the term 'space' should not be interpreted in a specialist sense, to exclude 'road' or other urban elements. Indeed, the very use of the term is a call for the removal of elemental categories of this kind. All unbuilt space must be seen as urban, and thus social, space. Obviously, different spaces must accommodate different emphases and types of demands made upon them - certain spaces for example, must, amongst other things, handle the movement of vehicles. However, the central point of this distinction is that no space can afford to be uni-functional. Positive spaces accommodate a number of demands. Usually, they do not accommodate the demands of any one use to maximum efficiency: overall, however, in terms of their contribution to the total environment, their performance is superior to that of a collection of specialist elements.

Secondly, the design of a network of positive public spaces cannot be seen independently of the structural implications of movement discussed previously. On the one hand, the movement modes forming activity spines occur in a volume of space: the experience of the spine is thus determined by how the two are handled in relation to each other.

On the other, the rhythm of the public spaces and the rhythm of the spine should complement and supplement each other to create a rich and reinforcing range of experiences.

(f) The Identification of Major Societal Institutions and the Recognition of these in City Building.

In any society, and at any time, certain societal institutions (religion, education, government, exchange, or whatever) are dominant: they are the symbols of their time. In rich environments, the physical accommodation of these institutions plays a vital role in structuring urban development. The institutions symbolically determine the heart of the city as a whole, or of large parts of it, and are vital in creating a sense of uniqueness and place.

A characteristic of modern city building practices is that this recognition
of symbolism and of societal institutions has almost entirely disappeared: in large part, it has been replaced by concerns of engineering efficiency. Roads, rather than social institutions, are the dominant elements of urban environments and our cities are immeasurably poorer because of it.

Clearly, a return to the symbolic recognition of these institutions demands that their accommodation be carefully integrated within the framework of urban spaces and movement systems outlined above.

(g) The Introduction of More Complex Processes of City Development.

Obviously, dominant processes of city building at any time are inextricably interrelated with the prevailing economic structure and dominant technology, and with alignments within the political economy. They are, therefore, not easily changed. It is important to recognize, however, that these processes both inform and are informed by the quality and structure of cities in a fundamental way.

On the one hand, environmental quality is directly affected by the mode of building delivery. As stated previously, environmental sterility and monotony is the inevitable consequence of a process in which the creative talents and energies of very few people and agencies are involved. An essential part of environmental richness is complexity, spontaneity and the presence of the unexpected, and these qualities cannot be totally designed: they demand a freedom of response which allows many people into the process. From an environmental perspective, therefore, there is an overwhelming case for reintroducing the concept of the "city of a thousand designers" (8).

Such an approach also makes great sense developmentally. Finance invested in construction can be spread over a much wider area and, by definition, the small man becomes an essential part of the process. Policy relating to process, therefore, can be consciously manipulated to contribute to overcoming societal problems such as poverty, inequality and unemployment.

On the other hand, the strength and clarity of the urban framework laid down by authorities directly affects the propensity of different processes being utilized
When there are very few fixes to which individuals or small operators can respond (as is the case in most of our cities) the situation favours the use of large, pre-designed and capital intensive processes. In essence, each new development creates its own internal logic, without any reference to the logic or operation of the city as a whole. When, however, clear structural signals exist to which people can respond, it is possible to allow with confidence much greater freedom of process.

The elements outlined above, therefore, in combination comprise a publicly-provided framework for urban development which has three main functions. Firstly, the way in which the framework is made (and particularly the public spaces) contributes directly to the quality of the environment.

Secondly, the framework provides a constraint to which individuals and agencies must respond. It therefore constitutes a restraint on freedom of action. Very importantly, however, that restraint is not negative, but highly positive. It has been argued above (and few would deny) that in the development of urban areas, freedom of action is desirable - if excessive constraint exists, individual ingenuity, creativity and spontaneity are stifled to the detriment of both the environment and the individual. However, if insufficient constraint exists, freedom becomes destructive. The unrestrained pursuit of individual self-interest may be antithetic to the interests of the body corporate and leads to exploitation of weaker by stronger elements.

Both freedom and constraint are therefore necessary. However, in the environmental sense, the concepts of freedom and constraint are not opposites: freedom is dependent upon constraint. Freedom only exists in the context of opportunity for choice and choice, in turn, is created through constraint. A strong, clear, framework is thus enabling, since it releases a wide range of richer choices: the characteristics of the framework determine the richness and variety of the choices available. The framework thus acts as a catalyst releasing individual creativity.

Thirdly, the framework co-ordinates countless thousands of individual actions and decisions into a cohesive whole. It ensures that individual actions, taken in self-interest, operate in a reinforcing way and further the public good. Alternatively, it prevents individual freedom from being taken to the point where that freedom runs counter to the public good. The creation of a framework of this kind does not negate the need for administrative or legal controls to protect the common good. It does, however, lead to a change in emphasis away from
DEFINITION AND CONTROL OF A FIXED URBAN EDGE

CO-ORDINATED RHYTHM OF MOVEMENT

ACTIVITY RESPONSE EMERGENCE OF A SPINE HIERARCHY

HIERARCHY OF ACTIVITY SPINES

SPACE AS STRUCTURE

CITY STRUCTURE: INTERRELATED SYSTEM OF MAJOR SPINES
purely negative (administrative) controls which dominate city building at present, to a greater emphasis on structural or enabling controls.

Given the creation of such a framework, therefore, it is imperative that new processes, and particularly those which allow greater freedom to the individual and a greater role for small operators, be introduced. It is quite possible to do this. The two keys are, on the one hand, the release of much smaller parcels of land for development than is the case at present (thereby allowing a variety of individual and collective agencies access to the process) and, on the other, to sectionalize tenders, and, where possible within this, to promote labour intensive practices. Significantly, therefore, the issue of process is not one of either using one or another form of process. Rather, it is a case of allowing appropriate combinations of uses, in order that different uses can be used in correct contexts and that their strengths can be maximized.

5. CONCLUSION

It is apparent that the performance of South African cities is extremely poor and that their inherent characteristics are actively aggravating problems such as poverty and inequality. Clearly, the rectification of these issues will not solve the problems of the urban poor nor will they lead to adequate improvements in their quality of life. Nevertheless, they are necessary conditions for large-scale improvement: substantial progress towards the betterment of daily living conditions of urban dwellers cannot occur, regardless of political and social changes initiated, until these problems are tackled head-on.

It is, as I hope has been demonstrated, quite possible to reverse the negative tendencies in present city building practices. Clearly, however, such a reversal will not be easy. There are a great many powerful vested interests underpinning the processes and practices outlined above, and these will not readily submit to change.

Two perspectives, however, need to be placed on the prospects for change.
Firstly, change is not an outcome of abstract clashes between opposing societal forces and interests. The propensity for change to occur is directly related to the degree to which those changes are introduced into the struggle and the intensity for which they are fought. It is precisely for this reason that it is so important for all affected parties (and although the poor are obviously the most affected by the issues raised here, they increasingly apply to all urban dwellers) to be clear about what their possibilities actually are. It is the raising of this question to which this paper has primarily been directed.

Secondly, all societies are in a continual transition or process of change. There is, however, an unfortunate tendency for 'transition periods' to be defined purely in political terms: the phrase, for example, has often been used in Africa to describe the period immediately preceding independence. Analysis of the experiences of these countries, however, (and Zimbabwe is a case in point) raises a pertinent question: why have (presumably) democratic or popular governments so often acted, in relation to urban issues, in a manner so similar to more repressive or reactionary regimes (for example, the harassment of squatters and informal sector operators, the suppression of unrest over housing or transportation price increases and so on)? The reason, of course, is that they have no option. The conditions leading to housing price hikes, strife over transportation and so on, are in-built in the historical legacy of urban stock which these governments inherit and the reality of desperately limited resources denies the luxury of ignoring this inheritance. They are forced to react to the symptoms of these conditions since the responses lead to a challenge to power: dissatisfaction over daily living conditions inevitably leads to political dissatisfaction and creates social and political instability. In a very real sense, the prospects of social and political stability, and thus the introduction of far-reaching reforms, are directly affected by the urban legacy inherited. In an urban sense, therefore, the critical "period of transition" is not simply the period immediately prior to independence but the three or four generations preceding that.

The overwhelming lesson from this is that the drive for real urban reforms cannot await political change. Rapid city building is not going to be placed in limbo, it will proceed apace. How that process occurs will affect not
only the present generation of users, but their children and their children's children. It will also fundamentally affect the absorptive capacity of South African urban areas and thus the role they play in the unfolding history of this country.

NOTES

(1) Many of the ideas crudely and briefly outlined in this paper result from a research project on urban development being undertaken by D. Dewar and R. S. Uytenbogaardt. The results of this should be published in far more sophisticated and detailed form, towards the end of 1984.


(3) For a case study of how this occurs, and what the consequences are for revenue raising and, ultimately, rates and rental payments, see Dewar, D. and P. Andrew, Housing in the Stellenbosch Area, Urban Problems Research Unit, Working Paper No. 19, March 1982.

(4) Speech by the Hon. S. P. Kotze, Minister of Community Development, in Benoni, 8th July, 1982.

(5) The guidelines are outlined here in abstract schematic form. Obviously, in designing with these in specific contexts, a further set of considerations come into play.

(6) Reference to the linear form as being the basic building block of positive urban development should not conjure up an image of a single, endless ribbon of development snaking across the countryside. The basic blocks can be arranged in many and complex forms; they are quite compatible, for example, with grid or radial patterns or combinations of patterns or whatever. The essential feature of the linear block is simply that the width of the arm is limited (development does not sprawl concentrically outward) and pieces of urban development are oriented outward to a structuring movement line and not inward
upon themselves (see next section).
