SAFER BY DESIGN

Towards Effective Crime Prevention Through Environmental Design in South Africa

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INTRODUCTION

Dramatic increases in levels of crime in post-apartheid South Africa have placed the issue of crime prevention and control firmly on the agenda. While a National Crime Prevention Strategy (NCPS) is now in place, little of it has been implemented. Released in May 1996, the NCPS seeks to co-ordinate the activities of government departments, other tiers of government and non-state agencies engaged in crime prevention. About 20 implementation programmes have been formulated under the NCPS, each falling under one of four pillars:

- the criminal justice process;
- environmental design;
- community values and education; and
- transnational crime.

Pillar 2 seeks to help prevent crime via appropriate environmental design.

The NCPS defines this concept rather broadly as *reducing opportunities for crime by changing the environment in which it occurs.* Thus Pillar 2 of the NCPS is meant to apply across a range of initiatives, including design changes to private sector products such as cellular phones or motor vehicles.

However, while the NCPS attaches much importance to environmental design, it reveals a limited appreciation of what this actually entails, and its potential impact on crime levels. Indeed, three of the programmes under this pillar deal with issues which have no direct bearing on environmental design, such as identification systems for motor vehicles and citizens, and regulation systems for reducing commercial crime.

Besides these programmes, however, Pillar 2 also aims to introduce the concept of environmental design in respect of the physical or built environment such as development projects, residential areas or transport systems where government (whether national, provincial or local) plays a key role in enabling implementation. This monograph reviews international and local developments in respect of physical changes to the built environment aimed at preventing crime in effect, then, it falls under Programme 2.1 of the NCPS.

It is premised on a narrower definition of environmental design, which limits interventions to the built environment only and leaves product design to manufacturers. Indeed, international experience suggests that governments are badly placed to intervene in private sector design, where given the demands of the market, which increasingly include adequate security and crime prevention industry innovations are likely to outstrip any contribution by the state.

Research for this study was conducted by a multidisciplinary team; it was aimed at reviewing the debate on environmental design and the implementation of this notion in South Africa. This included a comprehensive (and sobering) assessment of international experience, which involved both a scan of the available literature as well as consultation of international experts.

Despite the impression created by the rather upbeat provisions of Pillar 2 of the NCPS, there is no magic formula for environmental design, and international research on the issue particularly as it relates to the built environment is fragmented and often contradictory. Given this, it is

recommended that programmes in this area be implemented with caution; crime prevention through environmental design is not a simple matter of applying readily available formulas. This is particularly so given some of the unique characteristics of crime and its settings in South Africa.

Despite the central position given to this concept in the NCPS, the debate in South Africa around environmental design is just beginning, and there is much to learn. In particular, comparative experience suggests that while the notion of preventing crime by means of environmental design is attractive in theory, it is difficult to implement. The danger is that environmental design may be seen as a quick solution a simple question of designing physical environments correctly to reduce crime rather than a long and experimental process. This is not to suggest, however, that the concept is not important. More broadly, it relates to the design and governance of safer and more secure living environments for all South Africans. Indeed, programmes established under Pillar 2 should be seen as a longer-term social investment, potentially involving a range of interested role players and civil society groups.

Besides this, given that many development projects under the Reconstruction and Development Programme (RDP) are still pending, there is a `window period' for learning and policy implementation in the area. This suggests that proactive inputs will be critical. Again a word of caution: planners and developers are confronted by multiple problems, of which crime prevention is only one. Added to this, local practitioners have had little exposure to the principles and practice of crime prevention through environmental design. Crime prevention policy needs to take account of this by ensuring that policy interventions do not place more obstacles in the way of the development process, or worse, suggest interventions which are unproven and may have little or no impact.

There is also the danger that issues of environmental design will be divorced from the general debate on crime prevention and local governance. What must be emphasised is that environmental design is only one strand of a far broader prevention exercise. Even if environmental design could play a key role in preventing crime, and this is by no means certain, some central government intervention is required. Critical to the success of any `designing out crime' programme will be a set of guidelines flexible enough to apply across a range of diverse projects and problems. This can be achieved by developing the analytical tools needed to assess problems and find appropriate solutions, rather than applying generic solutions which ignore local dynamics.

Moreover, in South Africa the danger of reactive forms of environmental design are amplified by the division of physical spaces as a result of apartheid. If the concept of environmental design and the related notion of defensible space are pursued to their logical conclusion, it is an easy step to walled suburbs and `pockets of safety' which will effectively separate the largely white rich from the largely African poor. Thus the notion of environmental changes aimed at securing space to prevent crime holds particular dangers in the South African context. Any programme of environmental design should seek to distribute crime prevention benefits equitably, thereby helping to ensure that social justice is restored and services equitably provided for all South Africans.

In the final analysis, introducing design issues into the crime prevention debate requires a careful assessment of how a range of players can be influenced to take this notion into account in planning and development processes and the management of spaces. It would be inappropriate to simply dictate a set of crime prevention standards, given how difficult it would be to enforce them and the fact that crime prevention (and by implication the design component

thereof) is often location-specific. What is thus required is a South African strategy which seeks to place the issue of crime prevention through environmental design on the agenda of policy-makers, city officials, planners, designers, and other practitioners.

This study briefly outlines the state of the debate on crime prevention through environmental design, and reviews South African developments in this area. Drawing on these conclusions, proposals are made for a `safer by design' strategy under Programme 2.1, Pillar 2, of the NCPS.

COMPARATIVE DEBATES

The study of crime has always taken into account the environment in which it occurs. Early criminological studies focused on localities with seemingly high proportions of offenders. In their seminal work on the subject in Chicago in the 1930s, Clifford Shaw and Henry McKay mapped the extent of juvenile delinquency and linked these findings with the zonal development of the city and the movement of people within it.[1]

Such studies of the spatial dimensions of crime declined in influence until the 1970s, when the debate was given fresh impetus.[2] While Shaw's and McKay's early work had recorded the areas where delinquent juveniles *lived*, later research focused on locations where offences were *committed*.[3] This shift in academic focus was paralleled (and reinforced) by other developments in criminology which had important policy implications. These focused on how opportunities were created for crime, and led over time to more sophisticated theories of `situational crime prevention' and `target hardening'.[4]

The so-called `rediscovery of the offence' (or, more, accurately the setting in which it took place) had important implications for the emerging discipline of criminology and its influence on policy-making. By mapping criminal events (or at least identifying the areas in which they occurred), interventions aimed at preventing crime in particular locations could be formulated.[5] On a micro level, these related to redesigning common targets of theft and vandalism[6] such as public telephones while on a macro level they suggested that changes in the design of the urban environment could prevent crime.

By the 1970s, several schools of crime prevention through environmental design were developing. These focused on architecture, housing construction and street layout as tools for preventing crime. The earliest contributions to the debate concentrated on the issue of defensible space through encouraging public vigilance and surveillance to prevent crime. This approach was first expounded by Jane Jacobs,[7] and popularised by Oscar Newman.[8] In design, Newman saw a way of encouraging the public to feel protective about their living environments, and vigilant against criminal activity in their immediate areas in this case, crime on large residential housing estates in the United States (see box 1). Newman identified statistical correlations between design features and crime, and translated these findings into four principles:

Box 1: The United States

Crime in the United States has escalated dramatically over the past few decades. Since the 1970s, environmental design has been seen as a vital (although not always successful) part of most crime

prevention initiatives.

Currently, crime prevention is being approached in three ways: greater law and order, tackling the root causes of crime, and Safer City initiatives. The last, introduced at local authority level, includes environmental design and focuses on partnerships between national government, cities, neighbourhoods and citizens.

A hallmark of the American Safer City initiatives is that solutions are designed to suit specific problems. Citizens are regarded as experts on urban violence affecting their daily lives, and are encouraged to lead the search for solutions. City authorities then provide an enabling framework for developing the solutions.

Environmental design was popularised in the early 1970s by Newman's attempts to improve the living conditions of the poor in housing estates. The importance of natural informal surveillance, specifically through visibility, as well as the sense of collective responsibility for common areas by residents were two fundamental ideas in the research.

Newman's work spawned a veritable crime prevention through design industry largely because his approaches were wrongly marketed as simple, user-friendly techniques that reduced the concept of crime prevention to a simple design problem, applicable to all situations.

Newman's approaches focused on models of defensible space. Four categories of physical design principles were identified which, independently or in concert, were seen as crucial for creating secure environments:

- *those which define spheres of territorial influence by dividing residential environments;*
- *those which improve the natural capability of residents to survey the public areas where they live;*
- *those which enhance the safety of adjoining areas; and*
- *those which through design, reduce the perception of peculiarity, such as applies to housing projects.*

Although considered to be valid housing design principles, Newman's approach was widely criticised in criminological circles for the following reasons:

- *causal links between changes in defensible space and crime reduction have not been established;*
- *design cannot operate independently from other social and economic factors;*
- *the study only applies to public housing;*
- *urban public spaces cannot be divided and territorialised;*
- *the fear of crime was not addressed;*

- ***the focus was on reducing property crimes, neglecting violent crimes;***
- ***the quick-fix solutions alienated residents and tenants; and***
- ***the long-term involvement of stakeholders and communities was ignored.***

Nevertheless, environmental design is generally the starting point of most crime prevention initiatives in the United States. The shortcomings are that this approach can only be used to reduce specific crime at a given locality, and the fear of crime. It involves some form of detailed crime analysis to identify localised patterns together with the micro environmental conditions which might create opportunities for crime to occur. It also requires close observation of urban spaces, and how these are used.

More recently, in the course of the Safer City initiatives, management issues and community crime prevention are being stressed as equally important, as are changes to the physical environment. There is a drive to concentrate not only on housing environments, but on all areas inhabited by the most vulnerable in society, including women, older people, the disabled and the poor.

Guidelines for Safer City initiatives focus on environmental design, but emphasise that these add value to broader strategies of crime prevention.

Territoriality: The capacity of the physical environment to create a sense of neighbourhood, and encourage residents to exercise surveillance over their defensible space. This involves the subdivision of communal space around residential buildings to promote proprietorial attitudes among residents.

Surveillance: The capacity of physical design to enable residents to casually and continually survey a public area.

Image: The capacity of design to improve the image of buildings, and to lessen or eliminate any stigma that may be attached to a given building or types of building.

Environment: The influence of a neighbourhood's geographical juxtaposition with safe and unsafe areas.

These principles are still accepted as useful contributions to the `design for safety' debate. Newman went on to prescribe design changes that would reduce a housing estate's vulnerability to crime. His work encouraged a major federal environmental design project in the United States, entailing a series of demonstration projects to test principles of environmental design. The successes have been limited, although the central conclusion of the study is useful: "Design for security should be unobtrusive and reinforce, rather than supplant, natural, informal processes of crime control."[9]

This policy initiative was followed by one in the United Kingdom (see box 2) which built on the work of Alice Coleman, who held, after an extensive (although methodologically questionable)

period of research, that a range of urban design features had the propensity to encourage greater levels of crime.[10] She tried to identify specific negative features of high-density urban housing estates, such as high-level walkways between apartment blocks. As in Newman's case, Coleman's ideas were tested on a range of housing estates in the course of government-sponsored pilot studies, with only limited success.

Box 2: The United Kingdom

Crime prevention through environmental design is currently high on the agenda in the United Kingdom. Although most of the design guidelines are provided by the Department of the Environment, programmes are being applied within broader crime prevention frameworks formulated by the Home Office. Other independent organisations are also contributing through practice and research.

The success of pilot projects in the mid-1970s resulted in the formation of the NACRO Crime Prevention Unit, funded by government. This was followed by the Home Office's `situational approach' to crime prevention, aimed at reducing the number of opportunities for offenders through increased physical security, target removal, removal of the means for crime, reducing the payoffs, increased surveillance, and broader environmental management.

Although widely applied, this approach was criticised for displacing crime, reducing individual freedom, and failing to address the social aspects of criminality.

At this time, Coleman's research on the link between housing design and levels of crime in housing estates gained prominence. Although methodologically flawed, it was enthusiastically received in some political quarters and led to a multi-million pound investment in the redevelopment of council housing schemes. Results were mixed, and there was no definite proof that these recommendations reduced crime or the fear of crime.

Crime prevention through environmental design was nevertheless encouraged by more accurate information supplied by the first British Crime Survey in 1982, and experiments with new technology. Entry phones and closed-circuit television systems were seen as means to overcome design shortcomings.

However, the Safe Neighbourhoods Unit warned against an over-reliance on technology. It recommended that innovations should form part of broader crime prevention strategies. In high-rise housing estates, the use of concierges to manage access to tower blocks was seen as a more appropriate form of control in combination with CCTV.

Although most crime prevention initiatives in the 1980s came from central government, research and experience increasingly identified local authorities as key role players. The Home Office encouraged Local Authority Initiatives with a practical guide on Community safety and crime prevention, much of which focused on the role of environmental design. Lessons from specific projects were applied to larger local authorities: five areas in five towns were identified and a crime prevention co-ordinator accountable to a steering group consisting of community representatives and police officers

appointed in each.

These initiatives were initially funded by the Home Office, but supervision and funding later reverted to the local authorities. These initiatives gave birth to the Home Office's Safer Cities Programme, directed at more than 20 local authorities.

Another urban initiative developed from a concern with the deterioration of town centres and their possible decline into unsafe environments. This led to the appointment of town centre managers, usually employed by local authorities, to act as brokers between statutory and commercial interests and encourage security and crime prevention practice in inner city areas.

The British police now also issue written guidance and advice on the principles of prevention through environmental design to architects, planners and designers. Pamphlets are provided on `safer housing' and `safer commercial and industrial facilities'. Information covers only the design of buildings and site boundaries, and plans submitted to local authorities can be awarded the police label `Secured by Design'.

Now covering the whole country, the initiative's weakness is that it considers only one aspect of crime risk. It is generally accepted that design measures can play a significant role in crime reduction, but should also consider management issues, facilities available in the neighbourhood (particularly for young people), and policing of the area.

Both the experiences outlined above proved to be somewhat problematic: quite apart from the fact that much academic energy went into questioning how Newman and Coleman had carried out their research, it became clear that lessons learnt in one particular area seemed to have little relevance elsewhere. The difficulties of centrally imposed forms of environmental design for crime prevention became all too obvious, as did the dangers of prescribing a fix-all solution to a range of design problems and crime prevention experiences.

The debate subsequently developed into a hotly contested competition between `design determinists', who argued that issues of design were a (if not the) central component of environmental design, and social theorists (including most schools of criminology), who argued that crime was caused (rather obviously) by a range of social factors from family breakdown to local mismanagement.

Surprisingly, as Paul Ekblom, a leading proponent of environmental design in the British Home Office, points out, no attempt was made to link the two approaches.[11] A later study in the United Kingdom which did attempt to do so found, significantly, that while design features of housing estates had a degree of influence on vandalism and general disorder, they were generally `swamped' by social factors such as the large number of young people on a housing estate and had only limited impact.[12]

The debate is by no means over: a number of government-backed research and policy initiatives continue in Europe and the United States. Increasingly, these seek to develop integrated models aimed at building environmental design into broader programmes of crime prevention and social development. Such approaches have tended to avoid the determinism of Newman and Coleman. One common critique of both their methodologies was that it had lacked an

understanding of the linkages between crime and the role of community participation, as well as more general governance issues, such as city, town or housing estate management. In other words, the social aspect of crime and its prevention was negated, and the focus was purely physical.

More recent environmental design programmes have (rightly) seen crime as a complex phenomenon. Thus, the Dutch school (see box 3) incorporated a victim-and-offender-orientated strategy which simply viewed the environment as a backdrop to and not the cause of crime. (`Buildings', to borrow from the South African expression, `don't do crime.')

Box 3: The Netherlands

Crime prevention by environmental design only surfaced in Dutch crime studies in the late 1970s. Until that stage, most environmental interventions were technical in nature, with not much understanding of the social and criminological dimension.

In the early 1980s, political interest in crime ensured that a wider audience was reached. Starting with a consideration of architectural and urban design as a means of discouraging sexual violence in public areas, the concept was widened to include public safety for everyone. At this time, spatial measures to promote public safety were considered to be official policy.

A steering committee for the Administrative Prevention of Crime was formed in 1986 with a sizable budget allocation, to support the policy and initiatives at local government level. This was regarded as a big breakthrough in crime prevention through environmental design in the Netherlands.

Currently, most local authorities in the Netherlands have their own policy documents on environmental design to prevent crime. Most initiatives in the Netherlands now focus on improving the public's perception of safety, largely by upgrading lighting in public areas. People are also encouraged to install security devices to reduce the risk of burglary, and large apartment blocks are divided into smaller units to increase residents' sense of belonging.

Authorities are also increasingly aware of management issues. More and more supervisors are appointed for public areas, and concierges are appointed for larger apartment blocks to control access to and from the buildings. With the development of new housing schemes, user participation is actively encouraged from the outset through to the design and management stages.

By the end of the 1980s, the enormous housing shortage which existed after World War 2 had diminished. In the new demand-driven housing market in which residents could specify their requirements, a safe and secure environment proved to be high on the preference list.

At the same time, a new generation of Dutch crime prevention experts acknowledging that most information regarding environmental design against crime was scattered and not really readily available to designers, planners and others involved in the design and management of the built environment consolidated most of the information into a Checklist of Points of Attention.

A set of eight performance criteria, in which the environment was seen as a link between the potential offender and the potential target, forms the point of departure for the Delft Checklist (see box 4). These are used as guiding principles when assessing new developments and proposed designs. Five physical and psychological thresholds to ward off offenders are identified:

- ***the presence of observers;***
  the degree of involvement;
  the degree of visibility;
  the attractiveness of the environment; and
- ***access/escape routes for potential offenders and their targets.***

From these points came the eight guiding criteria for the development and assessment of designs in the Netherlands. The Delft Checklist has not been in use for long, and its success on a large scale has still to be determined. Nonetheless, about 1 500 copies have been sold to developers, architects, planners, housing corporations and police departments.

Adherence to specified requirements can be rewarded with points to qualify for a quality mark, approved by the Dutch police. It focuses largely on site-specific situations, but also deals with larger urban planning and landscaping issues. This system has proved to be very successful in pilot projects, which has led to the introduction of the formal Dutch `Police Label for Safe Housing'.

The convergence of the debates in recent years has thrown up fruitful new analyses. Recent work in the United Kingdom has tentatively pointed to the layout of housing estates and town centres as key elements in crime prevention. The work involves careful analysis of local crime patterns in a number of areas, and their relationship with spatial issues in a range of physical settings. Given the past debates around methodology, the research is being painstakingly conducted, and those involved are quick to point out that their findings may not be replicable but need to be tested in various spatial contexts before a set of design principles could be determined.[13]

Thus the debate around environmental design and crime prevention increasingly suggests that no single design framework will be forthcoming. Instead, there is growing consensus that the process of design and crime prevention is an interactive and dynamic one which is often location- and/or product-specific. By implication, there can be no simple answers to the problem, and each case has to be judged on its own merits. (An example of a flexible approach is the set of criteria the so-called Delft Checklist evolved by the Dutch government for effective local environmental design (see box 4).

Box 4: Criteria for Environmental Design: The Delft Checklist

1. Presence of potential offenders

- ***Concentration of problem groups in vulnerable places.***

  Presence of undesirable elements such as drug addicts and

vagrants.

- *Concentration of households with children (vandalism) and youngsters up to 25 years (burglary).*

2. Presence of protective eyes

- *Actual presence of people, depending on the distance between houses and facilities, the degree of functional heterogeneity and the type of routes (busy/quiet, through route/only local traffic).*

  Tangible presence of people, depending on the extent of visual contact as well as the vacancy rate.

  Formal supervision (police patrol).

- *Semi-formal supervision (supervisors, concierges).*

3. Visibility

- *Sufficient lighting both during the day and at night.*
- *Uninterrupted lines of sight from buildings to extensively used spaces, and vice versa.*

4. Involvement and responsibility

- *Acquaintance with fellow residents, depending on the scale of the buildings.*

  Private area.

  Sense of belonging: the perception of a place as part of one's own street or neighbourhood.

  Clarity on responsibilities (sharp division of private and public territories).

  User participation in planning, design and management.

- *High frequency of people moving house.*

5. Attractiveness of environment

- *Congruence between user preferences and characteristics of the built environment.*

  Human scale

  Lively atmosphere.

  Attractive colours and materials.

  Adequate lighting.

  Deterioration, filthiness.

- ***Nuisance (smell, noise).***

6. Accessibility and escape routes

- ***Clear distinction between public and private spaces.***

  Closing off of private and semi-public spaces such as entrance halls, walkways.

  Security devices such as quality locks or alarms.

  Escape routes for potential victims.

  Large number of easily accessible entrances.

- ***Escape routes for trespassers.***

7. Attractiveness of a potential target

- ***Presence of money and/or valuables in homes, shops, offices.***
- ***Concentration of targets (people pickpocketing, purse snatching, violence, theft of cars).***

8. Physical vulnerability of a potential target

- ***Awareness/defensive attitude of a potential target (eg. target hardening).***

  Physical protection of a target against theft/burglary.

- ***Places frequented by women or elderly people, especially at night.***

That has led some leading criminologists to argue that urban designers, planners and architects, among others, should be exposed to the issues surrounding crime and crime prevention by means of a formalised awareness programme. This argument is based on the premise that criminological interventions are almost always too late (once the housing estate has been built or the town centre laid out) and that policy should seek to build crime prevention principles into the design process. That requires, in the view of some European policy-makers, a much more systematic development of crime prevention as a discipline. Until standard terminology is developed and the discipline clearly demarcated, there is little chance that much impact will be made.

The process through which an awareness of crime prevention issues is stimulated therefore presupposes some national intervention for generating a broad set of principles or guidelines to serve as a starting point. The development of such `handbooks' is being pursued elsewhere, although it is still too early to determine levels of success.

These experiences suggest that guidelines for designing out crime (should these be developed) must be seen as flexible instruments which either offer alternatives, or provide an enabling

framework. The flexibility of such principles is crucial to encouraging role players to add to the debate by experimental implementation. The monitoring and evaluation of specific projects important for measuring success suggests that the key to crime prevention through design is constant innovation.[14]

Given experiences with environmental design in other countries, what are South Africa's policy options? Any policy, the above discussion suggests, should be based on the following five principles:

- *The formulation of a set of loosely defined national policy principles which will facilitate debate and development at the local level.*
- *The encouragement of local-level, such as city-led, crime prevention through context-specific environmental design programmes.*
- *A recognition of the dangers of replicating one project in another area as well as the importance of learning from other local experiences.*
- *An acceptance that effective crime prevention through environmental design may take years to bear fruit and will rely heavily on local initiative and experimentation. However, it may well be possible to moderate local crime activities by means of relatively simple design interventions.*
- *Environmental design programmes are unlikely to succeed on their own, but should be implemented along with other initiatives such as effective policing and local governance.*

ENVIRONMENTAL DESIGN IN SOUTH AFRICA

South Africa is a late entrant to the debate around the use of environmental design to reduce crime. Since the turn of this century, South Africa has had the dubious distinction of successfully applying environmental design on a grand scale. This was, however, aimed at controlling the movement and lifestyles of certain sectors of society, rather than ensuring the safety and security of all citizens. This planning approach has led to a typical city structure which, it is argued, has a profound impact on the patterns of crime, and must therefore be taken into account if crime prevention policy is to be well formulated and international lessons applied locally. Broadly, apartheid planning has led to cities which are characterised by:

- *low-density sprawl;*
- *fragmentation, with development not being spatially continuous but rather in discrete pockets or cells;*
- *separation in terms of land use, income group and race; and*
- *a central core where most employment opportunities are located, and a distant periphery where dormitory residential areas are situated.*

Historically, these characteristics served to facilitate control over various population groups. They ensured an accessible pool of cheap labour for industry, as well as increased control over the movements of members of certain racial groups. The typical city structures which emerged during the years of colonial and then apartheid hegemony were also designed to protect the

primary beneficiaries of the system (the `white' population). Divisions between those living in better protected environments and those living more exposed lives are now less along racial lines and increasingly along economic ones.

Despite a change in government and the repeal of apartheid legislation, South Africa's cities still display many of these characteristics. There are departures from this, such as exceptional cases where low-cost housing provides good access to urban opportunities and is designed to promote the safety, security and wellbeing of residents. However, in many ways the unequal city structure is still being replicated.

This city structure has important implications for crime, and efforts to curb crime through environmental design:

- *It reinforces inequality, with the poorest having to travel furthest to reach employment and other opportunities. As transport subsidies are reduced, the folly of such a structure becomes more evident. Modal interchanges where different modes of transport intersect (eg train stations and bus and taxi ranks) are therefore used most by poorer commuters travelling to distant residential areas. Such places present many opportunities for both violent and petty crimes, and offer an immediate point of intervention for crime prevention through environmental design.*

- *The dormitory status of most residential areas, both rich and poor, means that these areas are virtually deserted during the day, increasing the vulnerability of property and of residents remaining there, particularly women, children and the elderly.*

- *Conversely, and as a consequence of mono-use zoning regulations, most inner city areas are deserted outside business hours (this pattern characterises many countries in which such planning principles have been applied).*

- *One effect of the separation of land uses (ie areas zoned as purely residential or purely commercial) is that people using inner city areas become more susceptible to crime, and businesses depart. Those cities with residential areas in the inner city (eg Hillbrow in Johannesburg and Albert Park in Durban) then suffer decay, which in turn leads to depressed rentals and degraded living environments. This is a cyclical process, which some of South Africa's metropolitan authorities are trying to address. In the meantime, poorer inner city inhabitants remain victims of crime. Interventions to upgrade the inner city may reduce crime, but may also increase rentals and displace the residents who now occupy the low-rental flats. This could increase inequality, as well as displace crime to other locations.*

- *Urban sprawl is also a cause of an unsafe city, and results from:*

  - the fragmented suburban form in which pockets of development are separated by open land (formerly as a way of enforcing group areas legislation). Between developed areas there are often large tracts of land over which there is no surveillance. This increases the vulnerability of people who need to cross these open spaces, and also presents opportunities for criminal activity and subsequent escape; and

  - low-density settlement patterns and suburban planning principles (such as the ubiquitous one house, one plot pattern). In these layouts, there is no clear ownership of common spaces, and side spaces are often left without surveillance; this means offenders can

easily escape. Without clear ownership of semi-public and public areas, it is less likely that residents will intervene to stop crime.

- *A common response to crime in these areas is to erect high walls and to install a variety of security measures to protect individual properties. At a larger scale, the emergence of security villages, or secured private housing estates, represents an attempt to place barriers to movement around whole areas of housing. Fear of crime is leading to the development of areas where people believe they are protected. Contrary to the intended aim, both responses often have the reverse effect. Rather than reducing crime, impenetrable barriers leave streets and open spaces without surveillance from properties, and leave properties without surveillance from the public realm.*

- *The effect of separating the rich from the poor in such an explicit spatial manner also has several adverse effects:*

  - For offenders, attractive targets (both property and people) are simple to locate. The separation also exposes people travelling from work to distant homes on traditional pay days, and makes it easier to plan petty crime and more sophisticated penetration of high security areas.

  - Areas which were historically better serviced have better infrastructure to deal with crime (eg a network of police stations), whereas many peripheral areas are underserved.

  - In the past, the desire to separate communities meant that many public facilities (eg schools) were embedded in certain areas rather than exposed to high activity zones. Apart from reducing access, this leaves them unsurveyed and open to vandalism when they are unoccupied. By exposing public facilities, the crime prevention benefits of longer hours of use and constant natural surveillance could be addressed.

Within cities, the form and function of townships and adjoining informal settlements require specific attention. The negative connotations of such environments, the degradation which characterises many of them, and the lack of integration into the wider city will need to be actively addressed if these areas are to be transformed into better and safer living environments. The issues of ownership and territoriality will need to be addressed as priorities. It may be possible, although controversial, for residents and the new legitimate authorities to appropriate the physical qualities used in the past to control people (eg limited access, surveillance, security lighting and grid layouts) to increase security.

At the most macro level, it could be argued that the fundamentally unequal city structure can only serve to further increase the causes of and opportunities for crime.

Many of the measures that can be suggested to ameliorate crime within this flawed city structure are just that: at best ameliorative, and unable to address many of the root causes. Because the built environment and people's locations within it are elements which can only gradually be altered, this may be all that can be done at this stage. However, addressing the overall structure of the city is essential in the long term if, as is popularly held, social and economic upliftment is the best avenue for reducing crime.

Currently, the danger is that reactive environmental responses to crime are themselves having a profound impact on South African cities. Suburban houses are increasingly designed with fewer out-facing windows, or are situated in walled complexes. The principle of ringing suburbs with

fencing and/or controlled forms of access is becoming common, at least in Johannesburg. Increasingly, there is a widening social divide between public spaces such as the city centre of Johannesburg and publicprivate spaces such as shopping malls. Effectively, crime is resulting in a greater social distance between the wealthier and the poor, facilitated by the geographic divisions created by apartheid.

Fears over security are increasingly resulting in controlled forms of publicprivate space. These measures may also result in the displacement of crime to other, less protected areas (often where poorer people live) rather than its prevention. In so far as these strategies work in wealthier areas, the risks for people living in lower income neighbourhoods increase. Unfortunately, environmental design strategies are more likely to be successful in developed urban areas (where the wealthy live) than in underdeveloped areas, where there is little infrastructure around which to formulate appropriate policies. It is also possible that a poorly structured and monitored programme of environmental design will result in inappropriate physical features which will encourage greater social distance between the rich and the poor.[15]

Such dangers pose an added responsibility for any environmental design policy in South Africa: it should seek to prevent crime, while at the same time not encouraging the division of communities nor the introduction of new forms of post-apartheid `gatekeeping' in residential, commercial and recreational areas.

The issue of social development and local governance is also critical to the notion of crime prevention through environmental design. These measures should not simply be seen as minor changes to the physical environment to deflect or prevent criminal acts (generally for the benefit of the wealthy), but as encompassing broader programmes of economic and social upliftment aimed at improving the conditions of the poor.

ASSESSING CURRENT INITIATIVES

While Safer City partnerships are increasingly gaining attention, there is an inadequate understanding of crime prevention through environmental design at the local authority level. Practitioners are more aware that crime prevention should become a central consideration in the design process, but many officials and policy-makers have a poor understanding of the concept.

Many of the city initiatives and development projects reviewed here warrant further investigation and evaluation. However, thinking around crime prevention through environmental design seems to be more developed among planners and consultants who tend to design facilities for wealthier clients. Here perceptions and the fear of crime are perhaps more marked than the actual incidence of crime, although there is also more funding available to address these perceptions.

At the other end of the spectrum, there is no evidence that local authorities grasp the implications of crime prevention through environmental design as a strategy for building better environments and, through this, improving the quality of life of their users (see the case of Durban, box 5). The research for this study showed that, at best, city officials were familiar with the concept but did not fully understand it; at worst, they knew nothing about it at all.

Box 5: Durban

There is generally little awareness about how the layout and design of

housing, public facilities, and open spaces at a local level can assist in reducing crime and supporting policing. Responses by authorities to crime spots have been reactive. When crimes are linked to particular locations, authorities increase police presence and change the built environment in a limited way. Crime prevention through environmental design is not formally on the agenda in the design phase, and cannot yet be regarded as preventive.

The City of Durban's Urban Form policy itemises safety and security as an area requiring attention, but no short-term built environment interventions to increase security and reduce crime, or the fear of crime, are suggested. And while the Durban Metropolitan Area's policing document supports the NCPS, including the need to address physical environment design, there are no policy proposals other than to increase police presence.

Crime prevention through environmental design has also not been factored into the town planning process. Few regulations address how buildings relate to surrounding public spaces, but instead are designed chiefly for the users of buildings.

The Traffic and Transportation Department does not have a policy on environmental design, although it considers good lighting and surveillance in designing taxi ranks, bus ranks and subways. Despite increased vagrancy and a number of murders in the past few months, safety in Durban's parks is addressed mainly through internal policing. Environmental design for crime prevention is limited to floodlighting the main parks at night.

Regarding the management of public spaces, developers of the new International Conference Centre (ICC) are investing substantial amounts in treating surrounding public routes and spaces around the new facility to make it safer for users.

High-quality finishes are being used (flags, trees, wide pavements), CCTV has been installed between the ICC and the beach front, and lighting levels will be high. Maps will advise on the preferred routes between facilities to make streets busier.

Much of this seems to have been an afterthought, however. Sensitivity to international perceptions has prompted a reaction, rather than having been planned into the process from the outset. A representative of the City Engineer's Department agreed that it would be feasible to make crime prevention through environmental design an integral part of the planning process at a city level from an early stage in any project.

Several groups work on markets and informal trading in Durban. Apart from initiatives to formalise street hawking, there have been some examples of good design practice. The Mansell Road Project in the inner city comprises several residential units where traders live, with commercial space attached to each unit, a public market area, a long distance bus rank and public ablutions.

The row housing acts as a solid barrier on one boundary, and vehicle access is controlled. Pedestrians walk freely through the market area on their journey from the nearby train station to the city centre. A surveillance tower dominates the entrance.

At a wider level, the housing projects that are being initiated by the Durban Metropolitan Council (DMC) do not have written policy on environmental design, but it is factored into their general planning. As a town planning principle, effective street surveillance and lighting is ensured.

Cato Manor

An important development initiative is the Cato Manor Presidential Lead Project. There has been no explicit design policy around crime prevention, but criminality has been addressed through:

- ***attempts to address the distribution of policing facilities, and***
- ***planning according to the Metropolitan Open Space System.***

The planning of the development corridor for Cato Manor represents a major opportunity to apply crime prevention principles in an urban development context.

A number of Safer City initiatives have already been launched; Johannesburg seems to be the most advanced in this respect (see box 6). These initiatives tend to focus on issues, and do not give crime prevention through environmental design the place it should occupy.

Box 6: Johannesburg

The Greater Johannesburg Metropolitan Council (GJMC) has no direct policy on environmental design for crime prevention. Environmental design is on the agenda, but is presently mostly focused on how certain environments affect the safety of citizens and not on reducing crime through design.

This is evident in the council's working paper on urban form policy. The work in progress has considered the safety issue at a strategic level by focusing on conservation, accessibility and integration, but not on the issue of security, which will need to be enforced during the implementation phase. The issues of safety and security should be seen as complementary, as both contribute towards crime prevention. An example of this focus is the revamping of Park Station (see below).

Although evidence suggests that the council's approach to environmental design is not yet holistic, this has not hindered the GJMC from incorporating the principle in a number of projects which are contributing to the current revitalisation of Johannesburg. Private architects and urban designers have been employed to provide a framework and principles for creating safer communities. One such project is the Baralink development corridor scheme which links Soweto to Johannesburg's CBD (see below). Another example is the current revitalisation of the Western Joubert Park Precinct (see below) including Jack Minster Square, Joubert Park and the Johannesburg Art Gallery which uses the principle of designing out crime by making physical changes to the environment. The success of these projects will undoubtedly inform future policy on using environmental design for crime prevention.

Designing out crime is not only on the agenda of Johannesburg's inner city, but is also being applied by private architects, planners and developers. Although information indicates that private companies do not have a policy on crime prevention through environmental design, security dominates their concerns. However, evidence suggests that for one company, security might mean opening up space to provide easy surveillance, while to others it means restricting space only to those working in the area (see the case studies below).

Western Joubert Park Precinct

The park is well used, but has become a hive of criminal activity. The surrounding street areas are extremely busy, while areas within the park are quiet. Both the noisy, busy locales outside the park gates and the quiet areas have become settings for crime.

The council's investigations are presently focusing on opening up the quiet areas, making them more visible and relocating access points to these areas to create more movement and surveillance, thereby decreasing criminal activity.

Furthermore, access to the park will be made easier by creating physical pedestrian connections to the surrounding residential areas through constructing street crossings and more paths through the park. The Council is also investigating the creation of pedestrian-oriented streets that have limited access and land use. If the streets are returned to being predominantly residential and pedestrian, crime levels could be curtailed if residents feel they again `own' their streets.

The Baralink project

The Baralink project is a development corridor initiative covering the area between Soweto and the Johannesburg CBD. Urban Solutions the urban design consultants for the Baralink project have applied the principle of creating a traditional city, where streets are created instead of roads. Local districts are developed which are easily accessible by rail and road.

Working from the hypothesis that crime occurs when spaces are deserted, the `mixed development` concept is being employed. This combines residential areas with retail and commercial areas to provide 24-hour passive surveillance. Each locality is to be modelled on a grid system, with residential units close to the street. The public spaces, such as parks and squares, are overlooked by business premises and residential areas. No buildings will back on to public spaces, thus limiting access for potential criminals and providing open space for easy surveillance.

Park Station

The concept of environmental design utilised for revamping Park Station was limited to considering safety only, as stated in the synopsis above. Spacious circulation routes were provided, allowing a free flow of passengers. Fire exits and lifts for the disabled are also provided.

The current taxi rank will be revamped and restructured by providing designated routes for users. Within the station, shops have been allocated for the use of the informal traders who presently struggle for space on the pavements outside. This extensive restructuring is providing a safer environment for commuters, traders and transport officials.

However, it remains to be seen whether this will become a secure environment, since the consideration of security has essentially been an afterthought. The methods of security which have not been finalised might include CCTV and a control room, a satellite police station and private security guards. These are all reactive forms of crime prevention. A more proactive approach would probably lead to better results in the long term.

Residential and commercial areas

Parktown, which straddles Jan Smuts Avenue, has become a decaying

urban area. At present there are no proper pavements, and crime is increasing. Public spaces have become `non-spaces', with a high traffic bulk. A relatively high number of people use the area during the day; however at night the public spaces are deserted as local residents blockade themselves in their houses.

A private company of architects and designers, Manfred Hermer Gross-kopff & Lombart, have drawn up plans to turn this decaying area into a thriving shopping boulevard. By adopting the `mixed development' principle, they intend the space to be used by people on a 24-hour basis. Current plans draw on the classic public square idea, with restaurants and coffee shops facing on to the square with offices above. Car parking is planned in full view of this front section, as well as below, to maximise the use of space.

This combination of work and pleasure immediately attracts passive surveillance. The residential areas have been placed behind the shopping section, which then acts as a barrier to easy movement through to the residential sections. The individual residences will be divided by fences as opposed to walls, for easier surveillance from outside the properties.

There is also a dedicated space for buses and taxis. The whole boulevard is planned around a central traffic circle as a method of slowing down traffic on Jan Smuts Avenue. Adopting the principle of `no grime, no crime', the private occupiers of the space will also be responsible for keeping the public space clean.

Business parks

Environmental Design Partnership, the resource planners and managers, did not give details of specific projects, but highlighted the company's principles on crime prevention through environmental design for business parks.

There is strong resistance to the concept of `mixed development' for business parks in South Africa. The philosophy of securing private space by barricading it with walls and barriers is prevalent in business park architecture in Gauteng.

No space is provided for shops or retailers in these complexes, due to the fear of attracting crime. By securing a private space by means of walls, barriers and security and thus not letting the general public in it is assumed that the people working in such an environment will feel more secure.

Access to basement car parks is directly from the office buildings. This leaves no opportunity for passive surveillance, since people's actions are hidden behind walls.

This form of security can have the effect of making people feel closed in, and as though they are being imprisoned by the criminals.

City governments have produced no documents on implementing such measures, and they seem largely unaware of how effective a co-ordinated drive to reduce crime in public and private spaces through design interventions could be. Although the frameworks for environmental design are being put in place, or are already established no practical implementation is presently taking place.

Crime prevention through environmental design could easily form an extra layer in the

vocabulary of good urban design practice, and be implemented through existing structures. Designers have tended to consider this dimension intuitively rather than explicitly, and there is much that can be done to allow environmental design to play a greater role in urban design.

On the other hand, unlike some of the countries where this approach is being explored, there are many parts of South African cities notably low-cost housing environments where the opportunities for design input are very limited. In many cases, there is little co-ordination among the designers of layouts, servicing and housing, and ultimately considerable inputs by residents themselves. The challenge of crime prevention through environmental design also needs to be confronted in this context if the concept is to make a real impact.

What is particularly encouraging is the way in which South Africa's metropolitan areas are seeking to address the inequalities of the city structure; this is particularly true of Cape Town (see box 7). This addresses the root causes of crime, and therefore holds out some hope, along with the necessary economic and social measures needed to reduce inequalities.

Box 7: Cape Town

Local authority elections were held later in the Western Cape than in other parts of the country, and subsections of the Cape Metropolitan Council (CMC) have only recently been formed. The Economic and Social Development Section formed in July 1997 will be responsible for crime prevention policy at a macro city level.

The CMC has not yet tabled policy which addresses crime prevention, although there is a broad awareness of crime levels, especially in view of the impact this may have had on Cape Town's bid for the 2004 Olympic games, as well as its continued impact on international tourism. The Metropolitan Spatial Development Framework for Cape Town will guide the `form and location of physical development in the Cape Metropolitan Region'.

The framework identifies several key urban spatial problems and related development objectives, but does not mention crime prevention through environmental design. Many of the documented challenges could, however, be interpreted as relating to the prevalence of crime.

Olympic housing proposal

The housing schemes proposed by the Cape Town 2004 Olympic Bid Company intended to address urban sprawl by building high-density housing on well-located city sites, which were to be integrated with existing residential areas and based on mixed land use planning. In this sense the inequalities of the present city structure would have been redressed once the Games had finished and the housing occupied by `disadvantaged communities' as was the stated intention at least for the Olympic Village. However, a study of the Olympic housing proposal revealed that:

- ***the media village would become `upper income housing' after the Games; and***
- ***the permanent housing units in the Olympic Village would be sold in the lower middle income bracket, while `relocatable modular housing units' would be moved to poorer areas.***

The issue of more equitable location of poorer people within the city would not have been addressed in the long term if this proposal had been implemented. Given the necessary political will, there is of course no reason why the elevated principles that were stated in the Olympic Bid could not still be applied to ongoing development of vacant land in the Cape Town metropolitan area.

Victoria and Albert Waterfront

GAPP Architects and Urban Designers have laid down the urban design principles for the V&A Waterfront. According to the designers, the low crime rate at the complex is mainly related to the high level of policing. The complex has its own police who act as guides and information suppliers, building an image of friendliness and helpfulness.

The whole Waterfront is separate from the main city, making access easy to control. Vehicular access is limited in certain areas, whereas pedestrian access is not. However, anecdotal evidence suggests that those responsible for policing the area remove `undesirables' irrespective of whether they are suspected of `causing trouble' or not.

Policing is not, however, the only crime reduction variable in this venture. The complex has been well designed, making policing easier. The layout avoids dark, uncontrolled allies and ensures public surveillance, while good lighting and pavement cafes increase passive surveillance. Several residential areas are planned, and these have been designed to allow the control of pedestrian access without actually physically barring entrance. Housing will be in enclaves which clearly demarcate the private realm.

By all accounts, the V&A Waterfront is performing well. It is, however, a special case in South Africa, being functionally and managerially separate from the city. Funding enables the maintenance of high levels of policing, and ensures a highly presentable image.

`Undesirable' users may be excluded, and the facility would be unlikely to attract less wealthy clientele. In this sense, the V&A Waterfront is atypical of many of the problems confronted elsewhere, but provides valuable lessons in what can be achieved through good urban design.

These kinds of spatial development frameworks help to determine where particular projects can best be located. They do not usually determine the built form, or layout of the built environments. It is in this area where the knowledge and skill seems to be lacking to design built environments with crime reduction in mind, along with other good urban planning principles.

To confront the problem responsibly, an understanding must be reached of what kinds of bodies could best implement the principles of crime prevention through environmental design. And for appropriate institutional frameworks to be proposed, there has to be a grasp of what kind of intervention in the design of the physical environment will be feasible.

There appear to be three main types of role players in different categories of projects, who would be the logical bodies to address crime prevention:

- *In each city there are spaces and facilities which are controlled by public authorities such as municipalities and metropolitan governments. Here, it is in the cities' interests to intervene both at the design stage as well as when such facilities or spaces become sites*

for crime, or are perceived to be such. If there is an international focus on the area, this imperative increases, and matching funding can probably be found to intervene (eg streets, parks, markets, tourist facilities, public stadiums and modal interchanges).

- *There is a second category of facilities for which private concerns are primarily responsible. These include office parks, shopping centres and their precincts, security villages (where people and the concomitant body corporate can afford the premium for security), and waterfront developments. It is in the interests of the private sector to reduce crime and the fear of crime in these areas, thereby increasing the desirability of occupying or using such facilities. The public sector has an important role to play in regulating such areas, and ensuring that bylaws or guidelines are applied. However, the private sector remains largely responsible for designing and managing such areas.*

- *The third category is one where design interventions are rare. These tend to be residential areas which grow incrementally through the actions of many people. This could be termed the popular sector, in that the problems of crime prevention impact directly on resident communities. Large amounts of public or private sector funding are usually not available to address the issues, unless public funding is prioritised from a development perspective, such as the Katorus Presidential Lead Project on the East Rand (see box 8). Again, the local authority has an important role to play at the design stage to ensure that layout is well planned, and sound infrastructure provided.*

- *Management by the local authority is also crucial. Such areas would include residential suburbs, including townships and informal settlements. As much international learning shows, the resident community is the most important interest group in determining how crime prevention through environmental design should be implemented in these areas. A lack of funding and of international profile, as well as historical neglect, means that these areas often receive little attention, despite the fact that many serious crimes take place here.*

Box 8: The Katorus Project

The Katorus Special Presidential Project is addressing the reconstruction and development of all property damaged during the violence before April 1994 on the East Rand, through physical upgrading. This includes the areas of Katlehong, Tokoza and Vosloorus.

The areas of focus for the project include:

- ***recreational facilities;***

  residential areas (low-cost housing and hostels); and

- ***train stations and taxi ranks.***

Sports grounds

This part of the project was aimed at rebuilding stadiums which were vandalised during the violence. There was no policy on environmental design for crime prevention during the reconstruction, and the main security concern was preventing vandalism during and after construction. The only major environmental design feature was the building of a concrete wall

around the stadium.

The installation of cameras and the deployment of security was considered. However, the former was believed to be too expensive. In the latter case, the security guard was intimidated and eventually left.

At present, a temporary means of securing the stadium has been employed. A satellite police station has been located inside the administrative building while it is still under construction. After completion, however, it will have to vacate the premises.

Another method used to overcome vandalism and secure the stadium was to involve community structures such as soccer clubs and neighbourhood watches near the stadium. It was hoped that this would ensure passive surveillance of the stadium at all times. In the long term, the comment was made that `security matters are an ongoing process - there are plans to employ security guards at a later stage'.

Housing

Low-cost houses are to be developed for people living in informal settlements, and houses damaged during the violence are being repaired. No environmental design policy was applied in the construction of houses. However, by installing SOS emergency communication systems, the needs of the entire Katorus community were addressed. Communities and local authorities participated in selecting and identifying the ideal spots for the SOS pillars (in all, 58 units were installed).

This system enables the residents to call for help in the event of crime, medical, fire, sewerage, water or electrical emergencies. In order to contain crime and to increase police visibility in the area, 19 contact points have been developed with the co-operation of all stakeholders. The contact points were staffed by community constables recruited from defence units (which had formerly been in conflict with one another).

Hostels

Hostels originally intended to accommodate males working in the surrounding industries are to be reconstructed to form family units. No explicit policy on environmental design for crime prevention was applied in the design of these units.

The main focus was on repairing damaged structures, and developing family units. The only crime prevention consideration was the control of access to the hostels: a security guard was placed at a gate which acts as the single point of access to the hostel.

By upgrading the physical environment, it is nevertheless hoped that residents will have a more positive attitude to living there. Integrating hostel dwellers into the surrounding communities was apparently not considered as a possible solution to the crime problem emanating from hostel complexes.

Work is also planned on taxi ranks and train stations in the area, but this has not yet begun. In most of the Katorus projects, crime prevention through environmental design was not on the agenda, but was rather seen as a long-term issue to be dealt with at a later stage. The main focus was on the aesthetic reconstruction and development of structures damaged during the violence.

The importance of drawing distinctions between primary actors in each situation is that the principles of crime prevention through environmental design, and the institutional structures designed to implement them, will vary according to the context which is being addressed. For some, it may be a matter of drafting city policy that can be implemented when plans are processed. For others, the formulation of best practice guidelines for professional designers may be appropriate. The problems that local authorities have in managing residential areas on limited budgets may also be confronted, and may be accompanied by information given directly to residents to improve the security of their homes.

What is also important is that there must be a clear understanding of how interventions may work in each of these situations. The sources of funding, the institutional and legal frameworks, and the roles of different stakeholders are all equally important. There will probably be very different balances of power within these structures compared with examples in other countries (eg in the United Kingdom, where many housing estates have been developed or are still owned by public authorities which assume much of the responsibility for ensuring that they are safe places to live).

At this stage, there are at least two barriers that need to be surmounted if crime prevention through environmental design is to be appropriately applied in the South Africa context:

- *There is no accurate picture of the specific locations and types of crime taking place in South African cities. In the absence of such data, it would be ill-advised to apply, without primary research, foreign design guidelines that have been evolved elsewhere.*

- *There is presently very little understanding of crime prevention through environmental design. This concept needs to be refined for the South African situation and placed on the agendas of local authorities, designers, communities, security forces, and many other stakeholders. This could possibly take place, as is suggested below, through a widespread awareness exercise which uncovers the potential of environmental design as an aid to crime prevention, and adds to an understanding of the concept by the various role players.*

The main instrument for change from a structural perspective would be to adopt crime prevention through environmental design as a development aim for RDP projects, and to build this into city planning processes. In this way, broader quality of life issues can be holistically addressed. Better security and safety would then form one of the intended outcomes of any development process. (In fact, this is already written into housing policy, through the right for all to secure housing in viable communities.)

A review of the current South African planning framework and legislation reveals that mechanisms for co-ordinating crime prevention initiatives at the local level do in fact exist. These need to be mobilised to ensure that local authorities are given the capacity to implement programmes for tackling safety and development.

LEGISLATIVE FRAMEWORK

Local authorities are currently responsible for addressing the physical, economic and social needs of their areas. However, they often lack the legal, institutional, financial and human resources to respond adequately to the pressures of rapid urbanisation and increasing levels of crime.

Strengthening the constitutional position and operational capacity of local governments has been a key element of global policy. In South Africa also, the Development Facilitation Act (DFA) of 1995 and the constitution state that the objectives of local government are to promote a safe and healthy environment (sec152(1)(d)), and to encourage the involvement of communities, and community organisations (sec152(1)(e)) in assisting local government to achieve these goals.

Significantly, this legislation recognises that decisions made locally are most likely to be informed by, and serve the interests of, those most affected.

The RDP's vision for transforming the country is enhanced by the Bill of Fundamental Human Rights that provides the value system for developing and assessing public and private policy.

A disjunction exists, though, between the human rights and values contained in the constitution and the RDP on the one hand and outdated planning institutions, systems and processes on the other. The inability of these mechanisms to create an enabling environment for protecting human rights and improving the quality of life has led to the development of a series of new planning mechanisms.

The following mechanisms for change have been legislated:

- *the Development Facilitation Act (Act 67 of 1995); and*
- *the Local Government Transition Act (Act 209 of 1993) as amended (Act 97 of 1996).*

The Development Facilitation Act (DFA) embodies extraordinary measures to facilitate the implementation of reconstruction and development projects. Significantly for the NCPS and for crime prevention through environmental design policy the act aims to:

- *provide a fast-track mechanism for implementing the RDP;*
- *provide a framework to guide development at the local level; and*
- *reinforce the strategic approach to development by means of Land Development Objectives (LDOs) which have to be developed in accordance with the principles embodied in the act*

This suggests that, in principle, the DFA could be used as an implementation framework for crime prevention initiatives which comply with principle-led planning.

Providing a co-ordinating structure within local government ensures that communities affected by land development can actively participate in the planning process. This could also serve a broader social development agenda, with benefits extending beyond crime prevention. These national development principles can be seen as a first step towards ensuring a sustainable, safe and secure living environment for all South Africans.

The DFA also provides for LDOs or development performance measures at the local government level. These enable an assessment of local government's development intentions and performance. LDOs are also important for guiding land development decisions in terms of development goals, policies and frameworks in a particular locality, as well as the availability of resources.

The main objectives of LDOs are:

- *To create a framework within which a local government body, the local public and interested bodies can identify their own development needs, and plan how these will be realised.*

- *To allow for bottom-up planning to enable effective participation by the public and interested bodies, and to encourage partnerships between government and civil society in implementing the identified objectives.*

- *To build co-operation and co-ordination between different spheres of government in planning and development*

The Local Government Transition Act (LGTA) compels local government to develop negotiated Integrated Development Plans for their respective areas in accordance with national regulations. Integrated Development Plans will serve the requirements of both the DFA and the LGTA, and will essentially provide the legal and strategic framework for government expenditure and human resource utilisation.

Together, the two acts will create a new system for planning and delivery. Investment will be geared to key development objectives and priorities, enabling local government and other role players to direct capital expenditure and human resources to those development issues they believe are most important. Where crime prevention requires urgent intervention, local government will through legislation be compelled to direct resources to these issues.

Within this legislative framework, Integrated Development Plans represent the likely vehicle for local policy formulation and planning around crime prevention.

There is also an onus on local authorities to ensure that, in the normal course of events, developers and designers take responsibility for the way in which their projects and buildings contribute to public safety and security. Existing planning processes could easily be expanded to include `safety by design' principles. If communities place crime prevention high on their list of priorities in the LDO process, then professionals will need the knowledge and tools to design safer built environments. Residents can be encouraged to contribute, and local authorities can perform the role of arbiter.

Many of these institutional and planning elements are already in place. To set the process in motion, relevant stakeholders must undertake a visioning exercise to guide development in their area. This will align provincial and national development priorities with local ones such as safety and security, where this arises and will increase the likelihood of sustainable crime prevention strategies at the local level.

By encouraging local solutions to local crime problems, the probability of success is enhanced, as is the sense of `ownership' for the various parties in the fight against crime.

Projects aimed at preventing crime will form an integral part of local authorities' activities and will become part of the mainstream development initiatives in particular areas, rather than being the sole responsibility of the police. This will improve organisational co-operation, and draw local communities and the private sector into partnerships to eradicate crime.

The formulation of a strategic spatial policy framework will propel environmental design for crime prevention into the realm of strategic planning of the region or city. Local government bodies will need to assess their institutional capacity in relation to the development priorities for their areas. Local authorities that identify safety and security and crime prevention as key areas of intervention might need to review the structure of their organisations to ensure that they provide enough capacity to deal with these issues. Local government bodies will also need to plan how they will access and manage additional funding from external sources.

There are opportunities for using existing legislative planning processes without creating further bureaucratic channels which would not only burden the implementation of the NCPS but also require more capacity.

However, not all local authorities have the fiscal or human resources capacity to drive or even formulate their own crime prevention through environmental design projects. Furthermore, despite the new legislation, many local development processes are struggling. Locating crime prevention within this framework is unlikely to produce clear results in the short term.

Nevertheless, these weaknesses should serve as the basis for determining the needs of local governments, and how this capacity can be augmented with a national crime prevention directorate. This body could be represented at provincial level to ensure that all Integrated Development Plans submitted take safety and security into account.

POLICY OPTIONS

Given these conclusions, a policy initiative on crime prevention through environmental design under programme 2.1 of the NCPS should consist of the following broad elements:

Guidelines and principles

There is an immediate need to develop, at the national level, a set of principles for crime prevention through environmental design. These should consist of a broad overview of steps to be taken in the design process to ensure that crime prevention considerations are considered. These guidelines should be published in an accessible form, and distributed to as many players as possible.

This task is currently being carried out by the CSIR and the ISS, in a project funded by the Department of Arts, Culture, Science and Technology. Researchers hope to complete their work by early 1998. They also hope to provide a framework for implementing the guidelines.

The guidelines will emphasise how professionally informed, cost-effective security can be readily designed into any project, reducing opportunities for crime and acting as a deterrent to would-be offenders. Overall, the aim of the guidelines will simply be to introduce and encourage the use of environmental design tools in crime prevention. Key to the success of the principles will be how they are applied to individual circumstances.

Design guidelines should build on comparative work in the area, and should be applicable across a range of public and publicprivate spaces. These will include, among others, inner city areas, public shopping areas, residential areas (both suburbs and townships), parks, stations, taxi ranks and office complexes.

More generally, the guidelines should include specific proposals for `designing out' particular

factors conducive to crime. These would include, for example, addressing the way in which public spaces are arranged, appropriate levels of lighting, and ensuring that activity lasts as long as possible, thereby maximising surveillance. Particularly important also is the way in which buildings relate to public spaces, how entrances are treated, the way in which surveillance of public spaces takes place, and the design of public aspects of buildings (eg avoiding dark corners, blind alleys and recessed doors).

Pilot projects

There is still much to learn about crime prevention by environmental design in South Africa. If Pillar 2 of the NCPS is to help prevent crime on a sustained basis, there is an urgent need to initiate (or adopt existing) pilot projects which can be adequately analysed.

Such a local learning experience is all the more important given recent British research which suggests that environmental design initiatives may be of little use if they are `swamped' by social factors. And, as already argued, environmental design relies on reasonable levels of policing to succeed. There is already evidence that citizens regard crime prevention through environmental design as a weak response to disorder. Tentative results of the recent Johannesburg victimisation survey, conducted by the ISS, suggest that the vast majority of residents place greater stock in more effective policing and systems of criminal justice than in the impact of interventions such as improved lighting in public places.

The careful monitoring and assessment of pilot projects will be critical for determining some basic best practices for implementing environmental design. Research and pilot projects should be conducted into the following three areas:

- *The natural environment: safer parks, recreational areas, allotments, and green corridors.*
- *The built environment: safer housing developments, public facilities, commercial and industrial facilities, and open spaces between buildings such as squares, parking areas and alleys.*
- *Transport infrastructure: safer transport system and facilities such as stations, airports, taxi ranks and bus stations.*

Development reviews

The lack of crime prevention principles in current development projects is a cause for concern. Here in particular there is little to learn from elsewhere, and research needs to focus on current South African development realities. Initially, environmental design interventions in these areas may amount to little more than assessing the linkages between urban layout, the positioning of police stations, schools, parks and government services, and their connection between increases or decreases in criminality. But, given the current state of the debate, these may turn out to be important interventions.

A series of reviews of major development projects should be initiated to determine what can be done in the field of crime prevention through environmental design. Development reviews should not necessarily aim to influence current development projects, but should seek to learn how crime prevention through environmental design can best be incorporated into the development process at a later stage. The importance of this initiative is stressed by the fact that many development projects in terms of the Reconstruction and Development Programme are

still to be implemented. In effect, that means there is currently a critical `window period' for assessing how development projects can be influenced by environmental design principles.

Implementation

The co-operation of local authorities will be critical for the success of crime prevention through environmental design. In conjunction with the emerging Safer City partnerships and the South African Police Service (SAPS), a sustained series of reviews of crime conditions and `hot spots' should be initiated in the major metropolitan areas. It is clear from the discussion of comparative experiences that most projects will be locally specific (and often quite simple) interventions to reduce crime through environmental design.

Two initiatives are proposed at the local level:

- *The establishment of a Safer by Design Forum, facilitated if necessary by the NCPS. Cities, towns and developers will have the opportunity to learn from each others' experiences in the field of crime prevention through environmental design, and can engage with national policy-makers working around the issue. The forum should be a low-profile and highly practical attempt to begin to engage with the issue, and promote learning between role players in the field.*

- *The designation of Safer by Design officers or projects at local authority level to initiate local enquiries into whether the design principles provided at national level can be put into practice at the local level. The current Safer City projects are well placed to begin such interventions. Safer City strategies launched under the NCPS should be encouraged to consider issues of environmental design and to publicise their experiences. Where appropriate, such initiatives should be adopted as Safer by Design pilot projects*

The key to the success of Safer by Design projects will be at the local level. A failure to encourage local authorities to take up the challenge of crime prevention by environmental design will mean, in effect, that Pillar 2 of the NCPS will remain unimplemented. However, it is also clear that national or provincial government will not be in a position to compel local government to take up the challenge. The Safer by Design Forum (or equivalent body) and Safer by Design guidelines should seek to encourage local authority participation.

It would be inappropriate at this stage of the debate, however, to begin a high-profile campaign around the merits of crime prevention through environmental design. Too little is understood both in South Africa and elsewhere of its potential. If Pillar 2 is to be a success, it should not raise expectations about short-term advantages. There should, for example, be no national or high-profile launch of environmental design projects through the NCPS. While some projects may yield short-term benefits through innovative changes to the built environment, it will take some time for Pillar 2 to reap any benefits. And even when it does, these may be difficult if not impossible to measure nationally.

Incentives

In some European countries a debate has emerged on the extent to which legislation can be used to force planners, architects, landscapers and designers to take note of crime prevention principles much like regulations, for example, governing fire safety. However (and contrary to some debates in the private security industry), enforcement is not an appropriate option, given the poorly developed understanding of design principles for crime prevention and the potential

to add yet another bureaucratic layer to the development process.

A system of incentives would be far more appropriate. This can be achieved in a number of ways. The few comparative examples suggest a system of crime prevention audits may be an appropriate intervention if this is systematically carried out. Crime prevention audits on major developments such as shopping centres, stations, office parks, car parks, government buildings and housing developments should be encouraged.

The following criteria could apply:

- *While it may be appropriate to conduct an initial range of funded audits of high-profile public areas, audits should be funded by the developer, property owner, or the government authority.*
- *Audits should not be burdened by bureaucratic procedures, but should be conducted cheaply and quickly.*
- *Audits should take into account the specific circumstances of the development in question, and should incorporate the principles of local crime analysis.*
- *Successful projects should be prominently specified as `Safer by Design' by means of a commonly recognised logo.*
- *The local SAPS should be intimately involved in the audit, and should be in a position to provide data on local crime conditions.*
- *Audits should culminate in a written and publicly accessible report.*
- *Projects which have been audited should be revisited to determine levels of success in preventing crime.*

Measurement

The measurement of crime prevention through environmental design (as well as crime prevention projects more generally) has been increasingly debated. The Dutch approaches outlined earlier demonstrated the difficulty of assessing the qualitative results of crime prevention measures. They also highlighted the fact that crime prevention through environmental design should be seen as a form of social investment whose benefits are not only linked to the reduction of crime but also to an improvement in the quality of life.

The implication is that a national policy on crime prevention through environmental design will be difficult if not impossible to measure. This is not to suggest that no measurement should occur, but that this should be confined to locally specific examples in the pursuit of developing best practices for environmental design through crime prevention.

What will be required is the updating of the original guidelines developed at the launch of Programme 2.1, Pillar 2 of the NCPS on a yearly basis. This should take place under the auspices of the NCPS, and should draw on both practitioners and researchers in the field.

The monitoring and measurement of progress made with Pillar 2 should take place in the context of the initiatives such as the `Safer by Design' Forum and the development of general

principles for crime prevention through environmental design outlined earlier.

CONCLUSION

Developing a national programme for environmental design under Pillar 2 of the NCPS poses some unique challenges to policy-makers. Comparative experience suggests that the short-term gains will be small and often contested, and that research and evaluation are crucial to longer-term success. While there have been a number of successful initiatives involving crime prevention through environmental design, no single national programme has achieved lasting success.

This spells some dangers for South Africa, where the public is demanding immediate action on crime. In any event, comparative experience does not provide a comprehensive framework for implementing environmental design initiatives in South Africa: many of the challenges faced here are unique and are closely connected to development initiatives and poorer communities, where there is little comparative experience to draw on. Thus crime prevention through environmental design in South Africa requires a broader concentration on social justice and development issues, and should seek to involve a wide range of role players from civil society.

The key to any national `Safer by Design' programme is incremental learning and local experimentation. This should take place in the context of a national programme which encourages such initiatives while providing broad principles for guidance, and opportunities for cross-project learning. Existing initiatives funded by the Department of Arts, Culture, Science and Technology around the development of such guidelines, and the investigation of appropriate case studies, should form the core of such a project.

Given also that local authorities will be central implementing agencies, experimentation and assessment at the local level must be encouraged. This should be done in the context of the current Safer City programmes, and must provide lessons for the implementation of projects elsewhere. It is also clear from comparative experience that the debate around crime prevention through environmental design is a dynamic one: effective crime prevention requires constant assessment and change.

An important area of learning in South Africa is how crime prevention through environmental design can be applied to large-scale development projects under the RDP. Thus research work over the next few years could have major benefits for development initiatives which have not yet been implemented.

ENDNOTES

1. *C R Shaw and H D McKay, **Juvenile delinquency and urban areas**, Chicago: University of Chicago Press, 1942.*

2. *See A Bottoms, Environmental criminology, in M Maguire et al, **The Oxford handbook of criminology**, Oxford: Clarendon Press, 1994.*

3. *Ibid, pp 587592.*

4. *Much of the original work in this area was undertaken by researchers at the British Home Office. See R V Clarke, Situational crime prevention: its theoretical basis and practical scope, in M Tony, and N Morris, **Crime and justice: an annual review of research**,*

Chicago: University of Chicago Press, 1983.

5. *In the United Kingdom, implementation took place via a nationally driven Safer Cities programme. See N Tilley, Crime prevention and the Safer Cities story,* ***Howard Journal of Criminal Justice****, 32, February 1993.*

6. *See R V Clarke,* ***Situational crime prevention: successful case studies****, Alanby: Harrow and Heston, 1992.*

7. *J Jacobs,* ***The death and life of great American cities****, New York: Random House, 1961.*

8. *O Newman,* ***Defensible space: crime prevention through urban design****, London: MacMillan, 1972.*

9. *See P Ekblom, Less crime, by design,* ***Annals of the American Association of Political and Social Sciences****, May 1995, p 117.*

10. *A Coleman,* ***Utopia on trial: vision and reality in planned housing****, London: Hilary Shipman, 1985.*

11. *P Ekblom, Presentation to CSIR crime prevention through environmental design project Pretoria, July 1997.*

12. *Personnel communication, Gloria Laycock, Home Office Police Research Group, July 1998. See S Wilson, Vandalism and defensible space on London housing estates, in R V Clarke (ed),* ***Tackling vandalism****, Home Office, 47, London: HMSO, 1978.*

13. *B Poyner and B Webb,* ***Crime free housing****, Oxford: Butterworth, 1992. See the review of crime free housing in the* ***British Journal of Criminology****, 3(3), pp 450453, 1993.*

14. *P Ekblom, Gearing up against crime: a dynamic framework to help designers keep up with the adaptive criminal in a changing world,* ***International Journal of Risk, Security and Crime Prevention****, October 1997 (forthcoming).*

15. *D Dewar and R Uytenbogaardt,* ***South African cities: a manifesto for change****, Cape Town: Urban Problems Research Unit, 1991.*

16. *A Louw and M Shaw,* ***Stolen opportunities: the impact of crime on South Africa's poor****, ISS Monograph 14, Johannesburg: Institute for Security Studies, August 1997.*