

## **TOWARDS THE RIGHT TO ADEQUATE HOUSING ACKNOWLEDGEMENTS**

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## **EXECUTIVE SUMMARY**

The right to adequate housing is widely recognised as a basic human right and is enshrined in the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, and the Habitat II Declaration and the South African Constitution. Article 26 of the Bill of Rights in the Constitution states that “everyone has the right to have access to adequate housing”.

It has been widely acknowledged, however, that the right to adequate housing is currently not being adequately fulfilled in South Africa. One of the reasons for this is that the South African housing budget is too small. The government’s target was for housing expenditure to be 5% of total expenditure - in reality in 1998/1999 it was less than 2%. Increased expenditure on housing could greatly facilitate the provision of adequate housing for all, have considerable economic benefits and reduce the need for government spending on health problems caused by inadequate housing and services.

The main reason for the right to housing not being adequately addressed in new housing projects is that there is little awareness among roleplayers, about the meaning of “adequate housing” and of how it can be achieved. This report is intended to raise awareness about the right to adequate housing and about possible ways in which to contribute towards the fulfilment of this right.

National/provincial government, local government, civil society and households all need to work together to ensure that the right to adequate housing is fulfilled. Ideally, more resources are necessary, but even without additional resources there are many things that can be done to improve the adequacy of new housing developments, e.g. layout, orientation, planting. The government’s focus should be on providing an adequate public environment, appropriate levels of infrastructure and contributing to a minimum topstructure, while the household’s responsibilities should focus on upgrading topstructures. The report makes recommendations on the following aspects of adequate housing (table x summarises some of these issues):

### **Location**

Adequate housing must be well located in terms of access to urban opportunities and avoidance of hazards.

### **Basic infrastructure**

Adequate housing must provide access to basic services essential for health, such as water and sanitation. Some form of in-house water connection and waterborne sanitation can be regarded as the minimum level of service in most urban areas. In the long term, environmentally friendly waterless sanitation systems and other forms of water conservation must be promoted. On-site sanitation (e.g. VIP latrines and aqua privies) and yard tank water supply may be acceptable on larger sites in peri-urban areas.

### **The dwelling**

Adequate housing must provide protection from the elements and suitable space for eating, sleeping, relaxing and family life. A typical household of five people requires a minimum 20-30m<sup>2</sup> core house which can be enlarged over time to a more ideal size of 40-60m<sup>2</sup>. Orientation of the dwelling to the north with suitable overhangs is essential for thermal efficiency and energy savings. Attached houses make better use of space and should be encouraged.

**The urban environment**

Adequate housing must provide a pleasant, safe and convenient environment in which to live. Sites of 100m<sup>2</sup> (on flat land) are adequate provided there is sufficient good quality public space. The conservation and promotion of vegetation is essential in order to improve the appearance, microclimate and stormwater drainage of residential areas. There is also large scope for urban agriculture, even on small sites. A network of community facilities and public spaces within walking distance of residents is essential. Additional proposals include the need for associated funding for public spaces and multi-purpose facilities related to the size of the housing project.

**Affordability**

Adequate housing must be affordable for households with low or irregular incomes. Government subsidisation of infrastructure and facilities, and some contribution to a topstructure, is essential; the total cost of an adequately serviced site, including bulk infrastructure, is about R14500-R21000, and the cost of a 20-30m<sup>2</sup> core house is typically R8000-R10 000. Cross-subsidization of service charges and rates rebates for low income households are necessary. Government promotion of cheap and efficient energy supply, e.g. solar energy and gas, will also help reduce the ongoing costs of housing.

**Sustainable processes**

Adequate housing must be produced and maintained via processes that are sustainable and contribute towards broader developmental objectives. Housing delivery systems in which households are responsible for their own housing provision and hire local builders seem to work best. There is scope for local job creation in refuse removal and recycling and in the ongoing maintenance of infrastructure.

**Contextual suitability**

Adequate housing must be suitable for its social, political and cultural context, for example, allowance should be made for the existence of extended families. Adequate housing should also be suitable for the local biophysical environment; different designs and layouts are suitable for different parts of South Africa.

**Tenure**

Adequate housing must provide a range of secure and appropriate forms of tenure which do not discriminate against women.

TABLE X: OPTIONS FOR ADEQUATE HOUSING

	Urban	Inner city (multi-	Peri-urban (urban
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		storey housing)	agricultural)
Public realm	Network of public facilities and green spaces; hierarchy of multi-purpose roads and public squares; open stormwater drains; streetlighting		
Land	Typical plot size of 100-150m <sup>2</sup> (will be larger on steep land); individual ownership	co-operative ownership or rental (from a non-profit housing association)	Typical plot size of over 200m <sup>2</sup> ; individual ownership
Infrastructure	In-house water supply and waterborne sewerage; electricity as an optional extra	In-house water supply and waterborne sewerage; electricity	Yard tank water supply and on-site sanitation; electricity as an optional extra
Topstructure	Attached or semi-detached 20-30m <sup>2</sup> core houses which can be upgraded to 40-60m <sup>2</sup> houses	30-85 m <sup>2</sup> completed flats or single rooms in rooming houses	Detached or semi-detached 20-30m <sup>2</sup> core houses which can be upgraded to 40-60m <sup>2</sup> houses

[NOTE: Rooming house]

# **TOWARDS THE RIGHT OF ACCESS TO ADEQUATE HOUSING FOR ALL**

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## **1. INTRODUCTION**

This report is a response to concerns about the poor quality of new housing projects, which is partially the result of a narrow technical focus on housing. The report is intended to raise the awareness of decision makers and communities about what the issues with regard to adequate housing are, and makes suggestions as to ways in which adequate housing can be achieved. The report takes a holistic, cross-sectoral approach to housing, and was produced by a multi-disciplinary team consisting of people from urban planning, architectural, environmental, health and social work backgrounds. Two new housing projects (Wiggins Fast Track and Waterloo) and two informal settlements (Dunbar and Smithfield) in Durban were evaluated as part of the background research for this report.

Of all the basic human rights, the right to adequate housing is one of the most essential. Shelter from the elements and a place to eat, sleep, relax and raise a family are some of the basic things people need to be able to lead a fulfilling life. The right to adequate housing is widely regarded as a basic human right, and has been included in the new South African Constitution.

In some other parts of the world, as in South Africa in the past, ensuring the right to housing is mainly about resisting demolitions and forced removals, and persuading the government to support people in providing housing for themselves. In South Africa, though, there is now protection against illegal evictions and the government is spending large amounts of money on assisting low-income people to obtain housing. The right to adequate housing is about more than numbers, however, it is about adequate housing, and new housing projects in South Africa often fall short in terms of adequacy.

In terms of providing physical shelter, houses in new housing projects often have poor thermal performance and poor resistance to damp, and are often smaller in size than the structures they are replacing. Many new housing projects are also located in peripheral areas and the residential environments being created are sterile.

The right to adequate housing does not only depend upon the amount of resources available. It also depends upon legislation which facilitates this right and, most of all, it depends on how housing development is implemented. Some informal settlements, financed by people with their own savings, provide a better living environment than some new housing projects implemented at an immense cost. The main reason for the right to housing not being adequately addressed by local government and other roleplayers in housing development, including communities themselves, is that there is little awareness about what “adequate housing” is and how it can be achieved. This report is intended to contribute to the fulfillment of this right by raising awareness of what adequate housing is.

This report is concerned primarily with households that have to rely on government housing subsidies and cannot afford to get mortgages from banks. It is also concerned with urban areas only (metropolitan areas, cities and towns). The right to adequate housing exists in rural areas as well, but it

means something very different. For example, schools within walking distances of all dwellings and waterborne sewerage may be essential components of adequate housing in many urban areas, but this may not be the case in rural areas.

First of all, the international right to adequate housing is examined. Secondly, the context of housing in South Africa is reviewed. Broad principles for a suitable approach to adequate housing are then formulated, and the various aspects of adequate housing are looked at in depth. Finally, the roles of national, provincial and local government, civil society and households in working towards achieving the right of adequate housing for all are looked at.

## **2. THE INTERNATIONAL RIGHT TO ADEQUATE HOUSING**

The right to adequate housing is generally regarded as a basic human right and is enshrined in the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, and the Habitat II Declaration.

The United Nations Universal Declaration of Human Rights (1948), article 25(1) states that: “Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care...”

The United Nations International Covenant on Economic, Social and Cultural Rights (1966) is widely recognised as one of the most significant legal source of the right to adequate housing. Article 11(1) states that: “The States Parties to the present Covenant recognise the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realisation of this right...”

Section III (8) of the Vancouver Declaration on Human Settlements (1976) states that: “Adequate shelter and services are a basic human right which places an obligation on government to ensure their attainment by all people, beginning with direct assistance to the least advantaged through guided programmes of self-help and community action.”

The Habitat Agenda (1996) included a commitment by States to “the full and progressive realization of the right to adequate housing, as provided for in international instruments. In this context, we recognize an obligation by Governments to enable people to obtain shelter and to protect and improve dwellings and neighbourhoods. We commit ourselves to the goal of improving living and working conditions on an equitable and sustainable basis, so that everyone will have adequate shelter that is healthy, safe, secure, accessible and affordable and that includes basic services, facilities and amenities, and will enjoy freedom from discrimination in housing and legal security of tenure.”

The right to adequate housing is a socio-economic right as opposed to a civil and political right. Civil and political rights are usually clear and precise and can be implemented immediately; they usually only require the state to refrain from interfering with the rights. For example, the right to assembly and freedom of association requires the state to allow individuals to assemble together for meetings. Economic, social and cultural rights are usually vaguer and require positive action by the state, for example, the right to work, the right to health and the right to food. Whether or not an economic, social and cultural right can be implemented immediately depends upon the stage of economic development that a particular state is in (29). Housing as a human right does not get the attention it deserves as housing is viewed from a narrow perspective and not seen for the effect it has on other rights (28). For example if the right to housing is not met, it is difficult for people to fulfil other economic and social rights, such as the right to health.

The right to housing does not mean that the government must immediately provide houses for everyone, but its policies must work towards ultimately achieving the goal of adequate housing for all. The duties of government with respect to the right to housing include (29):

- The obligation to recognize or to respect, e.g. recognising the right to housing in the constitution
- the obligation to promote, e.g. formulation of a national housing policy leading towards adequate housing for all
- the obligation to protect, i.e. to ensure that housing rights are not violated
- the obligation to fulfil or ensure, e.g. subsidies and provision of credit

The Habitat Agenda (1996) lists the following actions of government in relation to housing delivery:

- Enabling markets to work
- Facilitating community-based production of housing
- Ensuring access to land
- Mobilizing sources of finance
- Ensuring access to basic infrastructure and services
- Improving planning, design, construction, maintenance and rehabilitation

It is often a lack of political will rather than a lack of resources which prevents the right to housing from being realised: “politics, policy and issues of commitment by Governments can frequently play a far more substantial role in preventing or delaying fulfilment of housing rights than do actual resource inadequacies” (28). Similarly, the Third International Shelter Conference held in Washington D.C. in 1990 concluded that the problem of housing people in developed and middle-income countries appears to be a “failure of political will more than a lack of economic capacity”, while “in the poorest countries, the failure of political will is exacerbated by poverty and a dearth of resources” (68).

### **3. THE CONTEXT OF SOUTH AFRICA**

#### **3.1 Policy**

The South African Constitution is one of less than a quarter of national constitutions which includes the right to adequate housing (29). Article 26 of the Bill of Rights in the Constitution states that:

- (1) Everyone has the right to have access to adequate housing.
- (2) The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right.
- (3) No one may be evicted from their home, or have their home demolished, without an order of court made after considering the relevant circumstances.

Although the state has a constitutional duty to “respect, protect, promote and fulfil” the rights in the Bill of Rights, there is a proviso that this is subject to available resources. The case of *Soobramoney v. Minister of Health, KwaZulu-Natal 1997*, in which a patient was sent home to die because his treatment was deemed to be too expensive, “creates the impression that the courts will not lightly interfere with the state’s failure to protect, promote and fulfil socio-economic rights when the state pleads that the required resources are not available” (31).

The Housing Act 107 of 1997 commits the South African government to: “the establishment and maintenance of habitable, stable and sustainable public and private residential environments to ensure viable households and communities in areas allowing convenient access to economic opportunities, and to health, educational and social amenities in which all citizens and permanent residents of the Republic will, on a progressive basis, have access to:

- permanent residential structures with secure tenure, ensuring internal and external privacy and providing adequate protection against the elements
- potable water, adequate sanitary facilities and domestic energy supply.”

The capital subsidy scheme which provides grants of up to about R18000 per low-income beneficiary for internal infrastructure and topstructures is the main instrument of housing policy. The Department of Constitutional Development’s Consolidated Municipal Infrastructure Programme (CMIP) provides funding of up to R3000 per household for bulk and connector infrastructure. Other components of residential environments, such as community facilities, are funded from a variety of sources.

[NOTE: Topstructure: the dwelling, excluding water supply and sanitation. Infrastructure: water supply, sanitation, roads, stormwater drainage, electricity. Internal infrastructure: infrastructure within a project’s boundaries. Bulk infrastructure: infrastructure outside the boundaries of a project which is necessary to link the project up to existing networks, e.g. trunk sewers, water mains and major roads.]

In 1994, existing sets of guidelines for layout planning and infrastructure, formulated by the Council for Scientific and Industrial Research (CSIR), were combined into the *Guidelines for the Provision of Engineering Services and Amenities in Residential Township Development* (the Red Book). The type of housing developments that these guidelines produce are spatially segregated

residential cells with a street network designed solely for motor vehicles (except for in situ upgrading, where it is often designed for pedestrians only). Integrated land usage, pedestrianism and public transport are effectively discouraged.

The National Building Regulations (SABS 0400) were promulgated in 1985. They are of a first world standard and include a minimum house size of 30m<sup>2</sup>. The Agreement Board is responsible for approving innovative building methods by issuing Agreement Certificates. The Agreement Board also issues MANTAG (Minimum Agreement Norms Technical Advisory Guide) certificates for low-income housing methods. In terms of the Less Formal Township Establishment Act 113 of 1991, building regulations and standards did not apply in low-income housing developments established under this act.

The new *National Norms and Standards in Respect of Permanent Residential Structures*, formulated by the CSIR, became effective in April 1999. The National Building Regulations and other SABS codes of practice were reinforced, including the minimum house size of 30m<sup>2</sup> (which could be slightly reduced in certain circumstances).

### **3.2 Housing delivery**

In the 1994-1998 period subsidies to 937 000 beneficiaries were approved and 629 000 subsidies were spent (12). The housing backlog is estimated to be more than 3 million households (42). Government housing expenditure in 1998/9 was R3.7 billion (1.8% of total government expenditure). Approximately R3 billion of this was spent on housing subsidies. In addition, the Department of Constitutional Development spent about R700 million on subsidies for bulk infrastructure (12).

Although tenure, infrastructure, and usually topstructures, are being delivered, new housing projects have been criticized on a number of grounds. For example, one view is that “the dwellings tend to be of generally poor design, environmentally unsound, unsuited to the local climate, and relatively expensive to maintain at a physically comfortable indoor climate. In addition, the new housing developments are themselves environmentally unsound, and not conducive to social, economic, aesthetic, or environmental sustainability. In effect the housing developments place a greater burden on the resources of the country, and on the inhabitants of the houses” (23).

Very few housing projects completed in 1994-1999 complied with the building regulations. Only 30% of houses built with the subsidy were 30m<sup>2</sup> or more (37), and this was only possible where there was additional subsidisation from some other source, for example, in Kutlwanong, where the Kimberley City Council effectively gave an additional subsidy of over R10 000 to each beneficiary (27).

In the 1995-1998 period the real value of the housing subsidy decreased by about 25%, and this resulted in a decrease in the topstructure. In 1995 a completed two room house with waterborne sewerage and an in-house water

connection could typically be afforded with the maximum R17250 subsidy. By 1998 typically only a one room frame house (or “bus shelter”) could be afforded.

Only non-subsidized households with incomes of over R3500 p.m. have been able to get access to conventional mortgage loans (of R50 000 and above). In the R800-R3500 income range, some formally employed households have been able to get access to secured loans of R10 000-R30 000 and some informally employed households have been able to get access to unsecured loans of below R6000. Interest rates in the formal micro-lending market are typically 40-80% and the interest rates of informal moneylenders are typically 400-500%.

[NOTE: Security: the way in which a lender ensures that the borrower will pay money back, and that if the borrower does not pay the money back the lender will have access to something of value that belongs to the borrower. Mortgage loans: the property is used as security, i.e. if the borrower defaults, legal action can be taken to evict the borrower and sell the property on behalf of the financial institution. Secured loans: the borrower’s pension or provident funds are used as security. Unsecured loans: the only form of security is that the borrower is formally employed and the borrower’s employer deducts the loan repayments from the borrower’s salary.]

In terms of investment in the public environment, local area infrastructure maintenance and environmental management have been much neglected by many local authorities in South Africa. For example, millions of rands worth of infrastructure in KwaZulu-Natal faces deterioration because of a lack of routine maintenance, e.g. water and sewerage reticulation systems, electricity facilities, roads, and stormwater drainage (8). Public investment in the provision and operation of community facilities is also often inadequate, and insufficient new facilities such as schools and clinics are often provided in new housing projects.

An example of a fairly typical housing project is Waterloo, a 4500 unit development on the northern periphery of Durban. Waterloo provides a bleak and sterile living environment. The area is located .... km from the city centre and there is virtually no vegetation. The typical houses provided are 1 room core houses with a toilet/shower and tap without a sink or any means of waste water disposal. The infrastructure provided consists of tarred roads and concrete pathways (both of which are designed to double up as stormwater drains), waterborne sewerage, semi-pressure roof tank water supply and prepayment electricity meter. Many toilets do not work and many water supply systems are leaking. Houses are often poorly located and there is little use of outdoor space. People usually keep their doors and windows closed for security reasons and many people have invested in safety gates and burglar bars.

## **4. PRINCIPLES**

There are four key principles upon which the recommendations in this report are based. Firstly, South Africa can afford to provide adequate housing to low income households. Secondly, new low income housing projects need to be sustainable. Thirdly, adequate housing should take a variety of different forms and provide a range of choices. Fourthly, achieving the right to adequate housing is the shared responsibility of all roleplayers.

### **4.1 Affordability**

There has been a relative neglect in spending on housing in South Africa. This is mainly because of the belief that increasing the current level of spending is not financially feasible and because of the bias to other priorities, such as education, health and job creation.

The Reconstruction and Development Programme (RDP) was the blueprint for government social expenditure from 1994 onwards, and although it has decreased in importance it remains as an official government policy framework. In terms of housing affordability, section 2.5.5 of the RDP states that the government “must allocate subsidy funds from the budget - to reach a goal of not less than five per cent of the budget by the end of the five-year RDP - so that housing is affordable to even the poorest South Africans”. For 1999/2000, 5% of the national budget would be R11 billion. If housing and infrastructure costs of R25 000-R30 000 per beneficiary are assumed (see section ...) and if a delivery rate of 200 000 a year is assumed, this would only equate to R5-6 billion, or half of the target (even assuming a 100% level of subsidization). This expenditure would be substantially less once the housing backlog had been cleared up.

In terms of housing’s linkage to other priorities, the housing budget is strongly linked to the health and education budgets and increasing the housing budget would have the effect of decreasing the health and education budgets. Better quality basic services and dwellings would result in a decrease in housing related illnesses, such as tuberculosis and diarrhoea. The integrated provision of shared community facilities would reduce the budgetary requirements for the building and equipping of schools and facilities for adult education. Providing adequately lit indoor space and safe places for children to play is also strongly linked to education and the development of children. Increased (and regular) spending on housing would also result in job creation, and has the potential to stimulate economic growth due to its strong linkages to other sectors of the economy (26). There is also a link between ill health and poverty; chronic illnesses caused by inadequate housing can result in loss of income which results in the undernourishment and ill health of children, which reinforces the cycle of poverty (47).

The effect of providing adequate water and sanitation on reducing diarrhoea is an example of the strong link between housing and health. Diarrhoeal morbidity has been estimated at 1.5 million cases per annum for children under 5 years of age (51). It has been estimated that access to adequate

water and sanitation can result in a decrease of up to 46% in diarrhoea morbidity rates (5). Assuming direct hospitalisation costs of R2250 per diarrhoea case and that 10% of diarrhoea cases are hospitalised (5), and assuming 40% of diarrhoea cases are in urban areas, by providing adequate water and sanitation for all in urban areas the health budget could theoretically be reduced by over R62 million per annum in terms of diarrhoea treatment for children under 5 alone.

## **4.2 Sustainability**

The principles of sustainable housing need to be considered in the design and implementation of housing projects if developments are to improve people's quality of life in the long term. Sustainability can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their needs (77). There is therefore a need to look after the ecological life support systems upon which all life depends. Ways of doing this include minimizing the negative impact on natural systems, e.g. pollution and soil erosion, and minimizing the use of non-renewable resources, e.g. the design of houses should reduce the amount of energy necessary to heat and cool them, and water supply and sanitation systems should make efficient use of water.

## **4.3 Choice**

In order to cater for a wide range of different housing needs, adequate housing should take a variety of different forms and provide a range of choices. In terms of location, new housing projects can be inner urban, suburban or peri-urban. In terms of type of housing, adequate housing can consist of detached dwellings, semi-detached dwellings, attached dwellings or multi-storey housing. There are also a variety of suitable building materials which can be used for adequate housing. Standards of infrastructure can also vary, for example, there can be a trade-off between a higher level of service and smaller plots in inner urban areas and a lower level of service and larger plots in peri-urban areas. Appropriate forms of tenure can include individual ownership, co-operative ownership or rental. Adequate housing can also vary according to climate, site conditions or the needs of individual communities, which is why community participation and context specific design are important.

## **4.4 Shared responsibility**

In the focus groups undertaken as part of the research for this report, residents of informal settlements saw the provision of adequate housing as the joint responsibility of national, provincial and local government and communities.

Essentially, national and provincial government is responsible for allocating and distributing subsidies (and establishing a suitable policy framework), local government is largely responsible for the provision, operation and maintenance of infrastructure, while households should primarily be responsible for the upgrading of their topstructures, with support from local government.

Government subsidisation should focus on the public realm, i.e. infrastructure and community facilities, with some contribution towards topstructure. From studies of informal settlements and serviced site projects, most people are capable of providing their own adequate housing, and upgrade their housing as their housing needs and financial status change over time. For example, in serviced site projects occupied by low-income households in Southern Pinetown, during the 1993-1996 period, concrete block houses were built on 45% of occupied plots without any external support (56). Similarly, although it has only been three years since the completion of the Wiggins Fast Track housing project, about 44% of households have made improvements to their houses. By contrast, individual households are unable to adequately provide collective infrastructure. Whether or not infrastructure is upgraded depends upon the local authority, and experience shows that this can not always be relied upon. While housing conditions can change dramatically over time, the financial constraints of local authorities usually mean that initial levels of infrastructure generally stay the same .

Households can be facilitated in upgrading their topstructures by the suitable positioning and design of dwellings. Suitable support for households should include technical advice on design and construction, and information on where to buy building materials.

[“Many of the key elements of an urban structure, those which have perhaps the longest lasting effects on the quality of life of the inhabitants of the city, are extremely difficult to modify. If they are inadequate from the beginning of a settlement they tend to remain so forever. Therefore the priority should be redirected towards securing those basic urban elements of housing (location, infrastructure networks, green areas, places of centrality)” (73).]

## **5. ASPECTS OF ADEQUATE HOUSING**

In order to get a better idea of how to ensure that the right to adequate housing is met, one needs to consider the various components that go together to make up adequate housing.

Housing is more than just shelter. Housing in urban areas gives its users access to the benefits of urban life. For example, housing can provide access to social opportunities (family life, community life, cultural and recreational

activities), and access to urban services (water, sanitation, electricity). Housing also indicates the status of the household within the community. People without adequate housing, such as homeless people and illegal shack dwellers, are on the fringe of urban society, unable to fully participate in the benefits of urban life.

There is a minimum technical level of adequacy, based on health and safety requirements, and accessibility requirements. Over and above this there are two competing and conflicting demands which need to be taken into account: acceptability to users and affordability. For example, while the objectives of health and protection of the environment can be maintained by a VIP latrine, users generally aspire to higher levels of service for reasons of convenience (72).

Definitions of adequate housing can differ considerably, but basically adequate housing has to provide shelter from the elements, provide suitable living space for the inhabitants, be located within a pleasant living environment, and be well located for economic and social opportunities (such as be close to public transport to shops and places of employment).

For example, Article 60 of the Habitat Agenda (1996) states that: “adequate housing means more than a roof over one’s head. It also means adequate privacy; adequate space; physical accessibility; adequate security; security of tenure; structural stability and durability; adequate lighting, heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities; suitable environmental quality and health related factors; and adequate and accessible location with regard to work and basic facilities: all of which should be available at an affordable cost”. “Adequacy should be determined together with the people concerned, bearing in mind the prospect for gradual development. Adequacy often varies from country to country, since it depends on specific cultural, social, environmental and economic factors.”

In order to look at how the right to adequate housing can be met, the following aspects of housing will be considered:

- Location: adequate housing must be well located in terms of access to urban opportunities and avoidance of hazards
- Basic infrastructure: adequate housing must provide access to basic services essential for health, such as water and sanitation
- The dwelling: adequate housing must provide protection from the elements and suitable space for eating, sleeping, relaxing and family life
- The urban environment: adequate housing must provide a pleasant, safe and convenient environment in which to live
- Affordability: adequate housing must be affordable for households with low or irregular incomes
- Sustainable process: adequate housing must be produced and maintained via processes that are sustainable and contribute towards broader developmental objectives
- Contextual suitability: adequate housing must be suitable for its social, political and cultural context and the local biophysical environment
- Tenure: adequate housing must provide secure and appropriate forms of tenure

## **5.1 Identification of land for building**

Section 2.5.11 of the RDP states that: “Land for housing must be suitably located geologically, environmentally, and with respect to economic opportunities and social amenities”.

Informal settlements are often located in flood plains, where there is risk of flooding, or on steep slopes, where there is risk of land slides. Often low-income housing projects are also poorly located, especially with respect to access to urban opportunities, such as employment and shopping. The location of housing in peripheral areas can result in high travelling costs and excessive travelling times. This is an especially harsh burden on low-income households.

The location of new housing developments is particularly important in South Africa, due to the need to integrate and compact the segregated apartheid spatial patterns of the past, where low-income households were deliberately marginalized by spatial isolation.

There are many other issues that need to be taken into account. New housing projects should not be located in the following areas:

- floodplains, coastal zone inundation areas and any excessively wet areas
- excessively steep areas and areas subject to landslides
- areas of unstable soil or subsurface condition
- any other environmentally sensitive areas or areas of significant natural or man-made hazard

Floodplains and steep slopes are looked at in greater detail below.

### **5.1.1 Floodplains**

There should be no development on the 1:50 year floodplain of rivers, especially since development increases the risk of flooding. As a rule of thumb, a buffer zone of riparian vegetation needs to be left 25 metres on each side of a river. The 25-50m zone on each side of a river should not be built on, but should be used for parks, sportsfields or vegetable gardens (63).

### **5.1.2 Slope**

Steepness of slope is a crucial factor as it affects the costs of development, the environmental impact and the safety of residents.

For slopes of 1:20 to 1:8 cut and fill is usually necessary (7). For slopes of more than 1:8 there is the danger of soil creep and mud slides, and stepped buildings or buildings on stilts are required. Slopes of up to 1:2 are theoretically developable, but steeper than 1:8 is not suitable for low-income housing, as it too expensive and extension of core housing could potentially be hazardous. Slopes steeper than 1:4 should ideally be conserved with natural vegetation (63)

[NOTE: Cut and fill: On steep slopes, platforms for building on need to be cut out of the slope, and the excavated soil can be used as fill to extend the platform. The banks must not be steeper than 1:2 and can be stabilized with grass, tyres or wooden poles.]

## **5.2 Basic needs**

For health purposes it is essential that everyone have access to adequate water supply, waste water disposal and adequate sanitation.

Although electricity is a safe and cheap form of energy and can improve the quality of life, it can not be considered to be a basic need as there are other suitable forms of energy that are potentially cheaper (see section ...).

Inadequate water supply and sanitation is strongly linked to diarrhoea. Diarrhoea is the leading cause of death in most areas of South Africa for the age group 1-5 years (51). There is also a strong link between improvements in water and sanitation and improvements in the nutritional status of children (51).

### **5.2.1 Water supply**

The aim of a basic level of water supply is to provide clean water in adequate quantities to cope with basic needs. The international minimum standard is a communal standpipe providing at least 20 litres per capita per day.

Water supply is essential for health:

- Drinking. Without water or other liquids the human body dehydrates, and this can lead to death after a few days.

- Regular washing of the skin and hair is necessary to remove dirt, grease, dead skin, sweat and pests such as lice, fleas, and bedbugs which may cause skin irritation or transmit diseases
- Washing hands after using the toilet to prevent contamination of food and cooking utensils
- Washing and cleaning of food products with clean water is also important, in order to remove bacteria and other surface contamination.
- Crockery and cutlery also need to be washed with hot water and detergent to remove bacteria.
- Clothes also need to be washed with hot water and detergent in order to remove dirt, bacteria, dead skin, sweat and lice, fleas, and bedbugs.
- Water is also used for cleaning the house, for watering the garden, for cooking, and for flushing the toilet (if there is a flush toilet).

It also needs to be borne in mind that South Africa's reserves of renewable water resources per capita are decreasing to crisis conditions. Where renewable water resources are less than 1000m<sup>3</sup> per person, it is regarded as a critical condition; it is estimated that by 2005, South Africa will only have 700m<sup>3</sup> per person (46).

[NOTE/DIAGRAM: Yard tank: water is supplied at low-pressure to a ground tank situated on a plot; the water flows out of a tap on the tank. Durban Metro water's yard tanks contain 200 litres of water and are filled once a day.

Full-pressure house connection: water is supplied at full pressure to taps in the house; the water is pressurized and squirts out of the tap.

Semi-pressure house connection: water is supplied at semi-pressure to a tank on or in the roof; the water flows down a pipe and out of the tap by gravitational force. There is no limit on daily water consumption. The tank should preferably be inside the roof and must be at least 300mm higher than the shower head (38).]

### **(a) Communal standpipes/yard tanks**

There are serious problems with communal standpipes. Apart from the inconvenience, there are serious health risks associated with transporting and storing water. Households storing water are 4.6 times more likely to have diarrhoea than those who do not store water (65). Distance from the tap was a significant factor in the risk of faecal contamination of water.

Although yard tanks are more convenient because they are located on individual plots, there is still the problem of disposal of sullage, as households who do not have an internal water connection can not be linked to the sewerage system. Yard tanks are an option in peri-urban areas, as disposal of sullage is less of a problem because adequate soakaways could be provided on larger sites and the sullage could be recycled for watering vegetables (63).

### **(b) Internal on-site water supply**

An in-house water supply has to be regarded as the minimum adequate level of water supply in urban areas. Having taps in the house eliminates the health

risks associated with the storage of water, it eliminates the safety risks of fetching water from outside at night, and reduces the amount of time and energy that would otherwise be required to fetch water. If there is a household water supply, women do not have to spend as much time fetching water. This can lead to more time for child care and for income generation activities, resulting in better family health and increased income. The women's savings in physical exertion can also have beneficial impacts in terms of the birth weight of babies (5). One of the main reasons for preferring this option is that it also enables waterborne sewerage or septic tank toilets to be provided, which solves the problem of dealing with sullage.

Conventional full pressure water supply in which water is supplied directly to taps inside the house at high pressure is expensive, as the high pressure of the water means that there is a greater chance of leakages, and tap washers and toilet cistern ball valves have to be replaced more frequently. A semi-pressure water supply system is cheaper; this is where water is supplied to a tank in the roof, and water runs down a pipe and out of the tap by gravitational force. As the pipes and fittings inside the house are not pressurised there is a lower chance of leaks, and taps and toilet cistern ball valves last longer. This type of water supply was common in the past and is still common in other parts of the world. It has only recently been introduced in South Africa by Durban Metro Water for low-income housing projects. The initial design had problems but has since been improved.

The disadvantage of an in-house water supply is that it encourages higher consumption of water - the water consumption for multiple tap house connections is typically 150 litres per capita per day (32). Flush toilets and baths use up much of this water

There are ways to reduce water consumption, however (44):

- water conserving taps (tap aerators and flow restrictors can be fitted to taps to save water)
- low flow rate shower-heads
- dual flush toilet cisterns and low flush toilet suites
- collecting rainwater in tanks to use to water the garden

[NOTE: sullage (grey water): household wastewater that has been used for washing, cooking or cleaning purposes; it may include solids, such as vegetable matter, but does not include any excreta. Typically, about 50-80% of water supplied to a house ends up as sullage. Sullage can be disposed of via the sewerage system, on-site soakaways or the stormwater drainage system. Sullage can also be recycled for watering vegetables by using a simple filter consisting of stone, gravel and sand in an old oil drum (7,63).]

[Soakaways: Durban Metro water recommends 200m2...]

## COSTS OF WATER SUPPLY OPTIONS

	Internal infrastructure cost	Bulk and connector infrastructure cost	Operating cost per month
Yard tank (typically 200 litres per day)	1000-1500	500-1000	15-20
House connection (typically 750 litres per day)	2000-2500	1500-2000	40-80

### 5.2.2 Sanitation

The purpose of sanitation is to remove and dispose safely of human wastes. Human excreta contain a variety of viral, bacterial and protozoan pathogens which can cause a variety of diseases, such as diarrhoea, gastroenteritis, hepatitis A, typhoid fever, cholera and dysentery. Inadequate disposal of human excreta can result in contamination of water supplies, ground water and food supplies.

[NOTE/DIAGRAM: VIP latrine, aqua privies (LOFLOS), waterborne sewerage, enviroloo]

#### (a) On-site sanitation

On-site sanitation systems include ventilated improved pit (VIP) latrines and septic tank/aqua privy toilets...

The minimum level of adequate service is typically regarded as a VIP latrine. VIP latrines are not suitable in certain areas, for example, on steep slopes or where there is a high water table, but where conditions are suitable, properly constructed and maintained VIP latrines can be a safe and hygienic sanitation option. Where they are not properly maintained, however, they can be a health hazard - e.g. if the gauze vent pipe covering is removed or broken, if the door is removed or does not close properly, or if disinfectants are thrown into the pit. The pits also need to be emptied approximately every five years.

The main reasons why VIP toilets are so disliked are their bad odour and the presence of flies. Another important reason is that they are perceived as not being safe, both in terms of not being able to use them at night (as they are located outside) and because the toilet seats sometimes feel as if they are unstable. VIP toilets are seen as particularly unsafe for children (59).

On-site sanitation, such as VIP latrines or septic tank/aqua privy toilets, is often necessary in peripheral areas where bulk sewers are too expensive to be provided. On-site sanitation requires sites of at least 200m<sup>2</sup>, so on-site sanitation may be considered as adequate in peri-urban areas where there are larger plots (3).

## (b) Waterborne sewerage

In South Africa, “conventional” waterborne sewerage is regarded as the standard commonly applied in the past, where sewers were a minimum of 150mm diameter and were laid at large depths and relatively steep gradients with 60m distances between manholes (45). “Simple” waterborne sewerage includes condominal sewers, midblock sewers, larger spacing (e.g. 100m) between manholes, shallow sewers, and “small-bore” or “solids-free” sewers.

Waterborne sewerage is overwhelmingly the most popular form of sanitation. The two main reasons why people like waterborne sewerage is that it is perceived as being clean and healthy, and the sewage is flushed far away from the plot, and does not remain on the plot, as it does with on-site sanitation. Other important reasons are safety and convenience, due to it being an inside toilet, and because there would be no smell or flies, as there often are with VIP toilets (59).

One of the disadvantages of waterborne sewerage that it uses a lot of water. Waterborne sanitation systems/sewerage treatment works are possibly more efficient at removing nitrogen and phosphates than VIP toilets, so the ultimate environmental cost of using VIPs may be higher than that of waterborne sewerage (5). The usage of water can be minimised, however, for example, by the use of low flush toilet suites that operate on a standard flush of 4.5 litres rather than the current norm of 9 litres are recommended (11). Dual flush toilet cisterns can also reduce water usage.

The use of environmentally friendly toilets which do not use water needs to be promoted..., e.g. Enviroloo, Dowmus

### COSTS OF SANITATION OPTIONS

	Internal infrastructure cost	Bulk and connector infrastructure cost	Operating cost per month
On-site: Aqua privy (LOFLOS) or VIP	2000-2500	0	5
Off-site: waterborne sewerage	3000-5000	2000-3500	15-20*

\* excluding water

## 5.3 The dwelling

One of the minimum requirements of adequate housing, as stated in clause 2.5.7 of the RDP White Paper, is that “all housing must provide protection from weather, a durable structure, and reasonable living space and privacy.”

There is a link between housing quality and general mental health and social well-being: “since housing provides the scenario for family life, recreation, rest, sleep and social interaction, it follows that many aspects of poor housing,

such as overcrowding, noise, air pollution, bad odours or dampness, give rise to considerable dissatisfaction and annoyance and perhaps contribute to poor health” (49). Various studies have also shown that early exposure to adverse living conditions are likely to increase ones vulnerability to illness and disease in later life (22).

Housing can take many forms, for example, blocks of flats, row houses, semi-detached houses and detached houses. Although detached houses are often seen as the norm in South Africa, attached and semi-detached houses make more efficient use of space, they are cheaper because of shorter service runs and shared walls, and can provide a better urban environment because they give a greater sense of enclosure to streets and back yards. The Chesterville row housing project in Durban provides a good example of attached low-income housing.

[DIAGRAM: attached/semi-detached housing]

### **5.3.1 Living space**

Adequate housing has to provide adequate space for the occupants. Airborne infections are spread by close contact and are therefore associated with overcrowding. Research has shown that there is a linkage between overcrowding and respiratory infections such as bronchitis and tonsillitis in children aged 1-3 as a result of the increased risk of pathogen transmission which overcrowding brings (49). There is also a strong link between overcrowding and psychological distress, especially amongst women, who often spend more time in the house than men (17).

Surveys in low-income areas generally show that household sizes vary greatly, e.g. from one person to more than ten, but typically with a median size of five people.

The ideal minimum house size to aim for, as recommended by the United Nations, International Union of Family Organizations and International Federation for Housing and Town Planning range from a 38m<sup>2</sup> three room house for a family of two, to a five room 62m<sup>2</sup> house for a family of six. These sizes provide adequate space for health and privacy and also cater for factors such as providing separate bedrooms for children of the opposite sex.

For low-income households it is usually impossible for a house of this size to be able to be afforded immediately. An incremental approach to housing is more suitable; the household starts off with a core house which is gradually enlarged over time when the household can afford to do so. A core house can be defined as a “liveable and functional dwelling so designed as to allow for additional space to be built on at a later stage by an owner-occupier without creating lighting and ventilation problems for the initial structure and its functions, and without interfering with a family’s normal use of and circulation within the basic dwelling unit” (43). A typical core house has a multi-purpose room used initially for sleeping, living and cooking, together with a toilet and shower.

About 4-6m<sup>2</sup> of built dwelling per person is considered a reasonable standard to aim for in low-income areas in developing countries (66), so about 20-30m<sup>2</sup> could therefore be considered an adequate minimum size for a core house. A good target to aim for is the Association of Mortgage Lenders' guideline for incremental housing, which stipulated that foundations and slabs must be for a minimum size of 40m<sup>2</sup>, on which a walled and roofed area of not less than 20m<sup>2</sup> must be built. The Uniform Building Code of the International Association of Building Officials and the MANTAG guidelines both recommend that at least one room in every dwelling have an area of at least 11m<sup>2</sup>.

Core houses are not complete houses, however, and should be designed so as to facilitate extension. There are various ways to allow for future extensions:

- positioning of the core house
- serrated edges of walls
- extended concrete slab
- extended roof covering which can be used as a veranda and later be filled in

The focus groups undertaken as part of the research for this report show that many residents of informal settlements see a two room concrete block house as an acceptable minimum topstructure, while some residents of informal settlements believe that a four room house is the minimum adequate house size, which confirms that a two room core house which can be easily extended is an acceptable form of housing provision.

For blocks of flats it is more difficult to expand dwelling size and less use of outdoor space can be made for household activities, so flats need to be of an adequate size from the outset, e.g. ranging from 30m<sup>2</sup> for 1 person to 85m<sup>2</sup> for a household of 6 people (24).

#### **4.3.2 Building envelope**

The physical structure, or envelope, of a dwelling needs to comply with the following three criteria:

- Thermal acceptability: comfortable thermal environment
- Adequate protection from damp
- Adequate ventilation and lighting

##### **(a) Thermal Acceptability**

An adequate dwelling must provide a comfortable environment - it should not be too hot in summer nor too cold in winter. Higher income households can generally afford to provide artificial cooling in summer and artificial heating in winter, but this is not always possible for low-income households. As a result they have to depend on the thermal performance of their houses to provide a healthy and comfortable indoor living environment.

Comfortable temperatures can depend upon a number of factors, but the thermal comfort range is usually defined as 16-32 degrees C with an optimum temperature of 21-22 degrees C (20). Above about 32 degrees is uncomfortable and causes sweating. Above about 40 degrees there is failure of free skin evaporation and high risk of heat stroke. Below about 16 degrees is uncomfortable with complaints of dry mucosa and impairment of peripheral circulation. Below about 10 degrees C shivering begins and restful sleep can be difficult (43).

Thermal mass, e.g. thick walls, is important to prevent rapid heat loss and gain, which results in the indoor environment being very hot on a hot day and very cold on a cold day. Insulation can also improve thermal performance, e.g. ceilings can prevent heat loss and gain through the roof, which is often the main source of heat loss and gain.

### **(b) Protection from damp**

An adequate dwelling needs to be protected from the damp, i.e. rain penetration, rising damp and condensation. Although the evidence is contradictory, damp housing can be considered to be a contributory factor to rheumatism, arthritis and respiratory diseases such as pneumonia, bronchitis and upper respiratory infections (49). Viruses and bacteria also thrive in moist conditions, and dampness encourages house dust mites and the growth of moulds and fungi, all of which can be a source of respiratory allergens, i.e. they can cause allergic reactions such as asthma (22). One study found that the occurrence of respiratory diseases in children was significantly associated with households living in damp houses (64).

Having a sufficient roof overhang to protect walls from rain penetration and having adequate ventilation to dry internal dampness are the best ways to prevent problems with dampness associated with rain and condensation. A suitable damp proof membrane beneath floor slab and damp proof coursing in the walls are essential to prevent rising damp.

[NOTE: rising damp, condensation, rain penetration]

### **(c) Ventilation and lighting**

Adequate housing needs to be suitably ventilated and have sufficient natural illumination during the day. Ventilation is necessary to provide fresh air and to remove indoor air pollutants, via openable windows and air-bricks. For minimum health purposes there need to be non-closeable vents to ensure that there is still adequate ventilation when all the windows are closed. Inadequate ventilation is a common problem; in Port Elizabeth, for example, it was found that 54% of all low-income households' dwellings were inadequately ventilated (65).

Ventilation is necessary for both health reasons, to remove indoor air pollutants, and for thermal reasons, to provide cooling in hot weather. The former can be catered for by allowing for appropriate fixed ventilation in the

form of air bricks or openings under the eaves. The latter need can be catered for by openable windows. Good ventilation promotes “physiological and psychological functioning of the human body, engendering a sense of well-being and comfort”; conversely poor ventilation can result in “a feeling of oppression and discomfort” (49).

Indoor pollutants that need to be removed by ventilation include:

- Carbon monoxide (CO) is a colourless, odourless, tasteless gas produced by the incomplete combustion of carbon fuels, such as coal, wood and gas. Low-level exposure to CO may result in the impairment of concentration and perception, while high-level exposure can result in heart damage, brain damage and death (49).
- Nitrogen dioxide (NO<sub>2</sub>) is produced by gas stoves, coal fires and cigarette smoke. High concentrations of NO<sub>2</sub> can result in chronic lung disease or death (49).
- Formaldehyde: can be released from glued wood products, varnishes, paints, and cigarette smoke. Exposure to formaldehyde can result in eye and throat irritation, nausea, headaches, rashes and tiredness (49).
- Water vapour: produced by breathing of people, activities such as bathing and washing clothes, etc. High levels of water vapour in the air can result in condensation, i.e. when warm air condenses onto cold surfaces, which can result in the growth of mould on walls. One study found that 80% of houses with poor ventilation were damp (65).
- Diagreeable odours (e.g. cooking odours, body odours, tobacco smoke, cleaning agents) can be a considerable cause of annoyance and nuisance
- Airborne micro-organisms: pathogens: bacteria and viruses responsible for respiratory diseases such as tuberculosis and pneumonia; allergens: spores of moulds and fungi and dust mites, responsible for allergic diseases such as bronchial asthma (49).

Windows are also essential for providing light during the day. “The penetration of direct sunlight into living accommodation has favourable psychophysiological effects on both thermal comfort and biological activity of the body. It also has a bactericidal effect. Daylight gives occupants a feeling of direct contact with the outside world, an important factor for mental and social well-being” (49). The lack of adequate daylight in a dwelling can also prevent activities such as reading and sewing from being undertaken indoors. In the new housing projects studied for the background research for this report, it was noticeable that, due to curtains being continually closed or windows being permanently boarded up for reasons of privacy and security, daylight illumination was often inadequate even for tasks such as cooking.

[NOTE: bactericidal]

Openable window space of 5% (1 :20) is an international standard for minimum ventilation requirements for habitable rooms, and can also provide adequate lighting if the windows are suitably positioned (see section 5.3.3). Windows that are too large, however, can result in unacceptable heat gain or heat loss and can also be a security risk (the installation of burglar bars and safety gates is the most common improvement undertaken by residents of

new housing projects). Window placement is more important than the size of openings: there should be at least two windows in the habitable space of dwellings, in different walls to allow for cross-ventilation.

#### **(d) Components of a dwelling**

In order to achieve an acceptable indoor living environment in terms of thermal performance, protection from damp and adequate ventilation and lighting, there are certain guidelines which need to be followed with respect to construction of dwellings. The three main components of dwellings are the foundations and floor, the walls and the roof.

##### **(i) Foundations/floor**

The requirements for foundations and floors are for stability, strength, durability, resistance to moisture penetration, fire resistance, and good thermal properties, all of which are met by conventional concrete foundations and floor slabs (provided the slab has a plastic underlay and there is adequate damp proof coursing in the walls). Earth floors are inadequate because the continual penetration of water from the ground makes the floor damp and cold. Research has shown that damp is a problem especially associated with structures with mud floors (65).

##### **(ii) Walls**

The requirements of walls are to provide stability, strength, durability and fire resistance, to have adequate thermal properties and resistance to sound transmission, and to exclude rain.

Concrete block is the most common walling material, but there are alternatives, which can be cheaper and more effective, such as earth construction. Another potentially suitable form of construction is straw bale construction, which is an old construction method undergoing a revival in the United States; straw bale walls are strong and have very good thermal insulation and fire resistance properties, but need to be plastered for protection against moisture penetration (70). Timber may also be appropriate in certain areas where suitable timber is available and where it is insulated as necessary.

[NOTE: Straw: the stalks remaining after the harvesting of grain, e.g. wheat, oats, barley, rice.]

##### *Concrete blocks*

Concrete block construction is adequate, as long as it is plastered. Concrete blocks are cheaper than cement and clay bricks and have the advantage of being able to be made on site using local labour.

##### *Earth construction*

Earth construction is commonly used for low-income housing development all over the world, and is also becoming increasingly popular for middle and upper income housing in the South West United States(35).

Soil can be stabilized by the addition of bonding or reinforcing elements, such as cement, lime, straw. Many types of soil, from clays, to loams, to very sandy soils, can be used. Stabilized earth is an “extremely strong, durable, heat and sound insulating, fireproof and rotproof” building material (19). In addition, it is freely available and easy to work with. External walls need to be plastered for protection against moisture protection.

There are a variety of methods for earth construction, such as adobe (earth mixed with water and shaped into bricks or wooden frames), compressed earth blocks and pise or rammed earth (where layers of moist earth are placed in a framework and compressed by pounding).

Evidence from informal settlements in Durban indicates that households replace their original dwellings of wood or corrugated iron with plastered and painted dwellings of earth construction where possible.

### **(iii) Roof**

Asbestos cement is a common roofing material, but its use should be avoided. There are long-term problems with the release of asbestos into the indoor environment, due to the friable characteristic of asbestos, which increases with the passing of time. Asbestos fibres in roofsheets are gradually released and can cause diseases such as lung cancer and asbestosis (25). Asbestos cement is banned in many countries.

[NOTE: friability...]

The main alternative to asbestos cement is corrugated iron, which is less thermally efficient. Cement roof tiles are superior to corrugated iron roofsheets, however, and can be fairly easily and cheaply made on site. Cement mixed with sand or earth, and fibres, if necessary, is placed in a frame on a plastic sheet and compressed by vibration. The plastic sheet with this compressed material is then laid to harden on a corrugated mould (2,41).

The greatest heat loss and heat gain is usually through the roof. The air in a ceiling space is a good type of insulation, and a ceiling with a ventilated roof space above is the most cost effective way of improving thermal efficiency (49). An insulated ceiling can reduce maximum indoor temperature by up to 5 degrees C in summer (34), and in areas with cold winters ceilings can reduce the heating required for thermal comfort by 50% (75). As an example, installing a ceiling costing R2500 can, in some areas, reduce the heating cost of a house by R37000 over 60 years (20). A ceiling does not have to be expensive: a ceiling consisting of a few sheets of cardboard and plastic sheeting can be supported under a roof on wires (75).

### **5.3.3 Location, orientation and layout of buildings**

Usually minimum distances between buildings are specified to reduce the risk of fire, and also to ensure that there is sufficient open space for windows to open on to. For example, land use conditions proposed as part of the Development Facilitation Regulations specified that a building must have a space of at least 1m between it and any of the boundaries of the site, with a minimum of 2.5 m for the space at the rear boundary. They also stipulated a permissible coverage of 60% for residential sites, 70% for commercial and community facility sites. For attached dwellings, “fire walls” are required, i.e. walls of adequate fire resistance up to the underside of the roof.

[NOTE: coverage]

In the Southern Hemisphere houses should face north, i.e. most of the window surface should be on the North side. There should ideally be no more than a 15 degree variation from North-South, East-West (11). Windows on west facing walls should be avoided due to problems of overheating during the afternoon. As an example of the effect of orientation, a study found that north facing houses were comfortable 28% of the time in winter, while west facing houses were comfortable only 11% of the time (43).

[NOTE/CAPTION:A roof overhang can shade north facing windows in summer and allows sunlight into the house in winter. Alternatively, windows can be shaded by deciduous trees in summer, which lose their leaves in winter, thus allowing sunshine through.]

Houses need to be located on plots in such a way that they can easily be extended. This is particularly important on steep slopes, where a household should be able to extend without having to undertake major cut and fill operations. Location for maximum use of the plot is also important. Attached and semi-detached houses make better use of sites, as there is no wasted space on the sides of the dwelling and the backyard is more private as it is shielded from the view of the street. The location of houses is also important in terms of providing a sense of enclosure to the street, so that the street becomes a definable public space rather than being just being part of a barren windswept landscape surrounding the dwellings.

## **5.4 Urban environment**

In order to be adequate housing needs to be located within a convenient and pleasant living environment. The components of an urban environment are:

- plot size (i.e. private space)
- green space
- hard spaces
- access to facilities

These physical components of the urban environment, together with the social/cultural environment and personal life experiences, help create a “sense of place”, which can be defined as “people’s subjective perceptions of their environments and their more or less conscious feelings about their

environment” (21). A good quality urban environment can create a strong and positive sense of place, which can help to increase community satisfaction, attachment and identity.

Environmental design interventions in urban layout, the positioning of police stations, schools and parks and their connection with criminality may also play a small but important role in preventing crime (14). Providing adequate streetlighting and ensuring that all public spaces, such as parks, roads and pedestrian pathways, have houses fronting on to them can also help to make residential environments safer.

#### **5.4.1 Plot size**

Most low-income housing will continue to be dwellings on individual plots, and the size of the plot is an important factor in the adequacy of housing. In South Africa, plot sizes have been getting smaller and smaller, in an effort to cut down costs and to try and prevent urban sprawl through densification. Typical plot sizes were 200-300 m<sup>2</sup> in the early 1990s, are now 100-150m<sup>2</sup>.

Typical plot size varies from context to context, but the minimum plot should be able to accommodate an average size household in a dwelling which satisfies required space, ventilation and daylighting standards. All plots should provide for a yard or other private open space

In many parts of the world, especially in Asia, plot sizes of 30-50m<sup>2</sup> are regarded as adequate (1,7,66). Plots of this size are too small in the context of South Africa, however.

Optimum plot sizes for low-income housing is usually regarded as being in the 70-140m<sup>2</sup> range (9). 100m<sup>2</sup> plots are regarded as “relatively spacious, even with detached or paired houses. There should be space for... limited house extension and small fruit trees” (66). Adding on rooms to use for rental or sharing with relatives is also important. Evidence from site and service schemes in Kenya show that even plots as small as 100m<sup>2</sup> can allow for the building of one or two rooms for rental (18).

The focus group discussions undertaken as part of the research for this report show that most residents of informal settlements would be satisfied with 100m<sup>2</sup> plots. This size was seen as been large enough to cater for the uses and activities normally undertaken on plots, i.e. extending the house, vegetable garden, flower garden, washing line, outside sitting area, children’s play area, trees and portable swimming pool.

The disadvantages of small plot sizes should be offset by well designed and finished public and recreational spaces and streets. If this does not happen, then larger plot sizes are necessary. For slopes steeper than about 1:8, larger plots are required as cutting and filling will result in part of the site being unusable. On- site sanitation also generally requires larger plot sizes, of at least 200m<sup>2</sup>, e.g. in peri-urban areas (3).

The shape of plots is also important. In general, plot frontages should be as narrow as possible, to minimize infrastructure cost per plot. Row housing usually requires a minimum width of 5m (3). Efficient plot shape should have a frontage to depth ratio of between 1:2 and 1:5 (9).

The need for smaller plot sizes and increased density is recognised by the government. One of the principles in the Housing Act of 1997 is to promote “higher density in respect of housing development to ensure economical utilisation of land and services”. Higher density does more than this, though - it also ensures greater accessibility of facilities and greater scope for economic activity.

Gross residential density is measured as the number of dwelling units per hectare, including roads and public space. Based on studies of housing projects, a reasonable guide for land usage is 60% residential, 20% roads and other circulation space and 20% public space (66). This would vary with density and the size of the project, however. With higher densities the residential component would probably decrease, while with smaller projects the residential component would probably increase.

[NOTE: density, DU/Ha]

Lower densities can be suitable in peri-urban areas as larger plot sizes can mean that low cost infrastructure solutions are possible and there is more space for urban agriculture.

New housing projects typically have densities of up to about 40 DU/Ha, but gross densities of 50-100 DU/Ha have been suggested as being appropriate in “developing urban areas” in South Africa, in order to support commercial enterprises and services, especially public transport (3). Assuming individual plots and 60% private space, plots of 100-150m<sup>2</sup> will give densities of 40-60 DU/Ha, assuming an average household size of five people. On steep slopes densities may need to be considerably lower.

Studies in Latin America have shown that densities of 300-600 people per hectare (about 60-120 DU/Ha) have been found to have the cheapest per capita infrastructure costs and can produce an acceptable and desirable residential environment. Infrastructure costs per capita at a density of 75 people per Ha (about 25 DU/Ha) are more than 3 times higher than densities at 300 people per hectare (1).

#### **5.4.2 Green space**

Green space consists of trees and vegetation, for example, in gardens, parks and next to roads. The importance of trees and vegetation as a component of adequate housing can not be overemphasized. One of the most striking difference between affluent suburbs and low-income areas is the lack of trees and other vegetation in the low-income areas. This has a vast impact on the quality of these areas. Paradoxically, some informal settlements have trees and vegetation and are often more aesthetically pleasing than the new housing projects. For example, 70% of respondents in the leafy informal settlement of Smithfield were happy with the vegetation in their area, as opposed to 76% of the respondents in the bleak new housing project of Waterloo being unhappy with the lack of vegetation in the area (see photographs on back cover). In the Netherlands, the Building Code of Practice makes it a legislative condition that wherever possible landscaping with trees, shrubs, flowers, grass, and water (e.g. ponds or streams) are part of all building developments (19).

Why are trees and plants important?

- Aesthetic reasons: vegetation can enhance the appearance of an area and tree planting can be used to create a sense of enclosure along activity routes and around public spaces
- Provides shade and shelter: vegetation can provide shelter from noise, sun, wind and rain. Conversely, the removal of vegetation negatively affects the microclimate, causing extreme temperature fluctuations and greater exposure to wind and solar radiation.
- Filters pollution: vegetation assists in removing pollutants from the air and producing oxygen. Trees and plants have a large role to play in filtering pollution. Trees with a bushy canopy and broad leaves are able to trap dust and other pollutants and act as air purifiers (19).
- Reduces runoff: vegetation acts as a sponge to absorb water, which improves on-site drainage. Vegetation on the side of the road helps to reduce stormwater runoff into stormwater channels.
- Reduces erosion/sand storms: clearing all vegetation results in faster water runoff and increased soil erosion. For example, the clearing of all vegetation for the development of Khayelitsha in Cape Town resulted in severe sand storms, which at one time almost completely buried houses in sand (13). Vegetation can reduce erosion by up to 50% and can also be used to stabilize steep slopes (7).
- Fruit and vegetable gardening: a 25m<sup>2</sup> food garden can yield 150 kg of vegetables per year, and would require about 200 hrs of work per year (about 4 hours a week). A 50m<sup>2</sup> food garden can yield 300 kg of vegetables per year, and would require about 300 hrs of work per year (about 6 hrs a week). A food garden of 25m<sup>2</sup> can therefore provide about 40% of a family of five's vegetable needs. A food garden of 50m<sup>2</sup> can provide over 80% of a family of five's vegetable needs (15).

Where there are individual plots, households can have private green space. As a comparison of informal settlements like Smithfield and new housing projects like Waterloo shows, however, outdoor space is only used if it "defensible", for example, where the outdoor space is overlooked by windows

and where there is a sense of enclosure created by the location of dwellings, fences and/or trees.

There also needs to be adequate communal green space, especially where there are small plots or multi-storey housing. Communal green spaces can be used for a variety of uses:

- private or communal fruit and vegetable gardening
- woodlots (for growing firewood)
- growing traditional plants for medicinal purposes
- cemeteries
- parks
- nature reserves
- open-air theatres
- pedestrian and cycle paths
- detention ponds with sportsfields

Significant clusters of trees, vegetation on steep slopes and vegetated stream corridors or swales should be incorporated into an inter-linked communal green space system, which should be linked up to the regional green space system. This will help prevent the degradation of habitats by fragmentation. Existing stable drainage patterns should also be preserved.

[NOTE/DIAGRAM: Swales: trenches dug along contours to retain water running down a slope. Swales help put water back into the soil and reduce erosion (63).]

Vegetation should be cleared manually and incrementally, and only the minimum amount of vegetation possible should be cleared for construction of buildings and roads. Cleared areas should be revegetated as soon as possible after construction. Once communal green space is provided it must be well planted and looked after, for example, making sure nobody cuts down the trees or dumps refuse there.

Changing people's perceptions about vegetation is important. At a housing project in Hout Bay, Cape Town, residents initially wanted the trees on their sites to be removed, because they felt it was a fire hazard and that branches could fall off and damage homes, and they also felt that the trees took up too much space on their small sites. After workshoping the importance of trees, the community decided that many trees as possible should be left. The trees are now greatly valued for the shade they provide and as shelter against the wind (63). Some similar comments on the benefits of vegetation, from the research undertaken for this report, include: "It helps us with fresh air", "it is good because it avoids us getting water-logged", "some trees produce fruit" and "I can appreciate nature".

### **4.4.3 Hard space system**

The hard spaces system consists of all surfaced (or compacted) outdoor spaces, such as roads, pathways and public squares. A system of roads, pedestrian paths and hard public spaces is an essential part of an adequate living environment. An access system must provide:

- pedestrian, cycle and vehicle access to and between sites, shops, facilities and public transport.
- space for community interaction, for children to play, place to walk or run for exercise, space for traders and space to sit and relax.

The access system must be designed for the use of pedestrians and cyclists, and not just for the use of motor vehicles. Access systems should be flexible, e.g. they may not necessarily accommodate cars now, but they should at the minimum allow for vehicular access at low speeds to all sites.

The access system needs to be a hierarchy, ranging from semi-private residential streets that are mainly used by pedestrians and for playing in, to public transport routes to be used by buses and taxis, and along which most community facilities and commercial activity will be located.

The main aspects of an access system are:

- layout
- standard of road
- public hard spaces
- stormwater drainage

### **(a) Layout**

Layout of the access/public space system should consist of some sort of grid, because this is the most flexible and convenient layout pattern. Grids maximize accessibility and are simple enough to accommodate a variety of land uses (3,33). A grid layout is more pedestrian friendly than a curvilinear limited access layout, because walking distances are generally more direct and quicker.

[NOTE/DIAGRAM: Grid layout and curvilinear closed ended layouts]

Layout also has important cost implications. The most efficient layout for waterborne sewerage is a grid pattern with blocks 80-100m long, and the need for intersection spacings necessitates block widths of 30-40 m (3). Blocks of these size are also very suited to pedestrians.

Roads should usually not exceed gradients of 10-12%, or 15% for tarred roads (7). On slopes steeper than this roads should therefore be contoured, even though this would necessitate cutting and filling. For steeper access routes it is better to have stepped pathways between the main vehicular routes, with smooth paving alongside the steps for bicycles. These pedestrian-only routes should be overlooked by dwellings or passing traffic and should be well-lit at night.

[NOTE/DIAGRAM: LAYOUT OF A RESIDENTIAL AREA (13). The layout consists of a grid with a hierarchy of roads, such as major arterial routes, activity streets and residential side streets. Community facilities and shops are clustered around public squares located at the intersection of activity streets. Major public open spaces, such as parks and sportsfields are located on the edges of the residential area).

### **(b) Standard of road**

The width and standard of road has a major impact on the costs of housing. There are essentially three main types of road:

- Distributors: regional and primary distributors which accommodate heavy volumes of relatively fast moving traffic (more than 60 km/hr), and there is a restriction on frontage access (3).
- Activity streets: accommodates high volumes of mixed traffic and bus route. Minimum 16m road reserve required (3).
- Residential streets (7): Streets designed primarily for pedestrians. A minimum width of about 3m is required to allow pedestrian access plus access by cars and small trucks at walking speed, as well as stormwater drainage and overhead powerlines. Sites would need to be large enough to allow on-site parking. A minimum width of about 6m is required to allow for two cars to pass each other, and for stormwater drainage and overhead power lines, and a minimum width of about 10m is necessary to allow for on-street parking as well. Speed bumps are necessary to keep speeds low, i.e. about 30-40 km/hr. As well as being dangerous high speeds cause significant road damage; speed bumps can reduce maintenance needs and enhance road safety.

There are a variety of different options for the construction and surfacing of roads, depending on site conditions and usage (7):

- Earth road: existing soil is compacted and profiled. There must be adequate stormwater drainage. Can be stabilized with cement or lime to improve the strength. Most soils are adequate for low traffic volumes; earth roads are adequate where the road is well drained and not excessively steep. Can be suitable for up to 50 vehicle movements per day.
- Gravel road: where existing soil is unsuitable and a layer of suitable graded earth (usually about 200mm) is laid. Can be suitable for up to 100 vehicle movements per day.
- Tared roads: roads should be tarred only if the conditions of climate and terrain necessitate such conversion or if the traffic volume has reached such an intensity where tarring becomes economical". Tarring of heavily used roads can be cheaper in the long term because, although maintenance costs vary according to context, tarred roads have typical annual maintenance costs equivalent to 2% of the capital cost whereas gravel roads have annual maintenance costs equivalent to about 5% of the capital cost.

### **(c) Public hard spaces**

Public hard spaces located on activity streets can be used as communal focal points, where markets, public telephones, solid waste bins, post collection points, public taps and public toilets can be located (3). They can also be the location for public transport stops and for community facilities. In order to be work well, urban spaces must be "enclosed" by trees, buildings or colonnades. The surfacing of public hard spaces is important, especially for markets, to ensure that they are usable in damp weather. Brick or block paving can be suitable as they are easy to repair and maintain. Public furniture (benches, street lights, play equipment, bollards) can also be provided.

### **(d) Stormwater drainage**

Stormwater drainage systems need to form part of the hard space system; they are necessary to remove surface water and prevent flooding. Inadequate drainage for surface water may result in puddles of water or marshy areas that provide breeding ground for mosquitoes, flies and other insect disease vectors. Inadequate drainage can also result in the site being waterlogged and muddy in the rainy season, which can cause great inconvenience and make parts of the outdoor space on the site virtually unusable. It can also result in the deterioration of roads, paths, buildings and restrict pedestrian and vehicle movement and in an increased risk of mudslides on steep slopes (i.e. slopes of more than about 1:10) as increased water/soil ratio reduces shear strength and causes lubrication of slip surfaces (7). The research for this report revealed inadequate stormwater drainage to be a major problem in new housing projects. For example, 87% of respondents in the Wiggins Fast Track housing project experienced major problems when it rained. Typical comments included: “The drains get blocked everytime it rains” and “water comes inside the house, and the floor and walls get damp”.

Development usually results in increased runoff and flooding due to the increased impervious area (roads and buildings), the removal of vegetation and the disruption of natural drainage patterns. Stormwater drainage and sewerage systems and local soils can not cope, and ground water is polluted.

Stormwater management plans must include minimizing impervious areas, increasing infiltration to soil by use of recharge areas, and the use of vegetated swales instead of pipes. Preserving natural drainage patterns for new projects instead of exclusively relying on pipes or channels has been shown to improve flood control and is substantially cheaper (76).

Stormwater drainage systems should preferably consist of open drains, as they are easy to clean (63). Underground pipes often become blocked, especially in low-income housing projects, as a result of erosion. The stormwater drainage system needs to be designed to carry sillage if there is no waterborne sewerage provision and if geological conditions are unsuitable for soakaways.

[NOTE: stormwater: rainwater which runs off buildings and land. Durban has annual rainfall of about 1000mm, therefore about 200 000 litres (200 m3) of water would fall on a 200m2 site per year, plus there may be runoff from other sites as well. Only a small proportion of this could be caught via gutters (e.g. if there is a 40m2 house, only 20% of this would be caught).]

[NOTE/DIAGRAM: Swales]

#### COSTS OF ROAD OPTIONS

	Internal infrastructure cost	Bulk and connector infrastructure cost	Operating cost per month
Graded roads with unlined	2000-2500	1500-2000	15

stormwater channels			
Gravel roads with lined stormwater channels	2500-3000	1500-2000	15
Narrow tarred roads (3m) with no kerbs and with lined stormwater channels	4500-5500	1500-2000	15
Paved roads with kerbs, gutters and piped drains	8000-10000	1500-2000	10

#### 5.4.4 Access to facilities

An adequate living environment needs to consist of a network of community facilities within reasonable walking distance. Based on the standards below, a 3000 unit development at a gross density of 50 DU/Ha would require about 15-30% of the project area for community facilities. The nature of these facilities is also important. For example, the research for this report showed that some clinics were only open once a week, creches were often too expensive and there were no sporting facilities for women.

#### GUIDELINES FOR COMMUNITY FACILITIES (53)

FACILITY	APPROX. THRESHOLD	MAX. WALKING TIME	MAX. RANGE	APPROX. SIZE
Crèche/small multi-purpose space	300 DUs	5 minutes	300m	<0.1 Ha
Primary school	500 DUs	15 minutes	700m	0.7-1.4 Ha
Secondary school	1500 DUs	30 minutes	1400m	1.4-2.6 Ha
Community centre (hall/ library/ clinic)	3000 DUs	30 minutes	1400m	0.1-0.5 Ha
Sportsfields	1 per 2 primary schools + 1 per secondary school (1 sportsfield = 0.65 Ha)			

[NOTES: Threshold: the number of dwelling units required to support one community facility of that specific type. Maximum walking time: maximum amount of time it should take to walk from a dwelling to a community facility. Maximum range: maximum straight line distance from a community facility to any dwelling it serves, assuming a grid layout and an average walking speed of 4 km/hr. Approximate size: size of the piece of land that the community facility should be allocated.]

The reason why people move from rural to urban areas is to have access to the benefits of urban agglomeration, which is why access to other parts of the urban area is essential. From an environmental point of view the green modes of transport, i.e. walking and cycling, are the most desirable. For longer distances public transport, e.g. bus or train, is the most efficient and sustainable way of travelling.

Section 2.9.5 of the RDP says that “commuters should be encouraged to use public transport, and should be actively discouraged from using cars (via parking, access and fuel levies)... As a first priority, rail transport must be extended. Bus lines must act as feeders to rail services, or as prime movers if rail is not available. Taxis must act as feeders to bus/rail services or as prime movers if neither rail nor bus is available”. As a guideline, public transport routes should be within 10 minutes walk of the population which they serve (9).

## **5.5 Economic and technical sustainability**

Adequate housing needs to be economically and technically sustainable:

- long-term affordability for households, local government and national government
- processes for the construction of housing and ongoing maintenance of infrastructure that are both efficient and contribute to broader developmental goals

### **5.5.1 Affordability**

One of the key aspects of adequate housing is that it must be affordable, for both the household and the government. Unaffordability for the household can result in denial of access, impact on expenditure on basic needs, or the loss of the dwelling (e.g. if the occupant can not pay the bond repayments, rent or rates and service charges). Unaffordability for the government will result in the unsustainability of housing provision and an increase in the shortage of adequate housing. There are two main aspects of affordability: capital cost and ongoing costs. The affordability of community facilities is of special significance and needs to be considered separately.

[NOTE: Capital cost, ongoing costs]

#### **(a) Capital cost**

The total cost of an adequately sized core house (20-30m<sup>2</sup>, and costing R8000-R10 000) on an adequately serviced site, including bulk infrastructure, will typically be about R25000-R30000.

This may be more on steep slopes where platforms need to be cut. It may be half as much for peri-urban areas, where a lower standard of infrastructure may be acceptable (see page...). The total cost of an adequately sized flat for a family (40-60m<sup>2</sup>) will usually be at least double the cost of a core house on a serviced site, i.e. at least R50 000.

The sources of money to pay for capital costs are:

- Savings of households
- Loans
- Local authority revenue (largely from rates)
- National government revenue (largely from income tax)

#### COSTS FOR RECOMMENDED LEVEL OF SERVICE

Service	Internal infrastructure cost	Bulk infrastructure cost	Operating cost p.m.
Water: house connection	2000-2500	1500-2000	40-80
Sanitation: waterborne sewerage	3000-5000	2000-3500	15-20
Roads:* gravel/graded/tarred with open channels	3000-4000	1500-2000	15
Electricity: streetlighting	1500-2000	N/A	15
Solid waste: kerbside removal	N/A	N/A	15
<b>TOTAL</b>	<b>9500-13500</b>	<b>5000-7500</b>	<b>100-145</b>

\*average

#### **(i) Capital subsidy**

The government's capital subsidies for housing and infrastructure is the main way of ensuring that low-income households who would not otherwise be able to afford adequate housing can get access to adequate housing.

Section 2.5.5 of the RDP states that the "government is ultimately responsible for ensuring that housing is provided to all", and "it must allocate subsidy funds from the budget... so that housing is affordable to even the poorest South Africans." Section 2.1.3 reinforces this, saying that "given its resources, South Africa can afford to feed, house, educate and provide health care for all its citizens".

Some subsidization is necessary to assist low-income households to afford land costs and the cost of a basic topstructure as low-income households do not earn sufficient incomes to be able to save up sufficient money or regularly repay loans. The reason why infrastructure for low-income housing requires upfront subsidization is that, whereas for middle income development local authorities provide the infrastructure upfront and recover the costs via rates, for low-income housing development the rates often do not even cover the cost of refuse removal\*. This means that the infrastructure costs have to be paid for, either from government capital subsidies or by the local authority. Some local authorities can afford to, and do, provide additional subsidisation to housing projects, but many local authorities are in serious financial difficulties and would not be able to do this.

[\*NOTE: In the Durban central councils in 1998/1999, the owner of a R7500 building on a R7500 plot would have had to pay rates of R18.62 per month. The cost of refuse removal by Durban Solid Waste in 1999 was approximately R13-19 per plot, depending on the distance from the disposal site.]

In light of the fact that the total cost of a core house on an adequately serviced site is R25000-R30000, the current maximum subsidy level of about R18000 for topstructure and internal infrastructure and R3000 for bulk infrastructure is obviously too low. This is largely due to the fact that subsidies have not kept pace with inflation; the value of the maximum housing subsidy, in real terms, decreased by about 25% in the 1995-1999 period. If the maximum level of subsidization (a maximum of R17250 for internal infrastructure and topstructure plus up to R3000 for bulk infrastructure) had kept pace with inflation from 1995 to 1999, it would now be approximately R27000, which would be a more realistic amount for attempting to provide adequate housing.

[NOTE: Inflation]

Subsidization of multi-storey rental housing is also important. The subsidy would have to be allocated to a non-profit housing association and be applied to a unit. Unless the level of subsidization per unit is at least twice as high as the level of subsidization per beneficiary in incremental housing projects, new blocks of flats would still be unaffordable for the poor as the monthly rent for the first 20 years or so would have to include a loan repayment portion. The

purchase (and renovation or conversion, if necessary) of existing buildings by housing associations aimed at low-income tenants is cheaper than building new multi-storey housing and can be affordable for the poor. Rooming house type accommodation, in which people rent out individual rooms and make use of communal cooking and ablution facilities could be particularly suited to small low-income households and single people.

## **(ii) Loans**

A cornerstone of housing policy has been that low-income households should get credit to supplement their subsidies. This has not happened in reality: low-income households have low and/or irregular incomes and are often, quite understandably, unwilling to take out loans, even at highly subsidized interest rates, because they may not be able to pay the monthly loan repayments. Loan feasibility studies undertaken in low-income areas of Durban have shown that typically only 30-40% of households are willing to take out loans, and the median loan size that can be afforded is only about R5000, which is only sufficient to build a single room (54).

Lending small loans to low-income households is only viable for lenders at prohibitively high interest rates of 40-80%. Informal money lenders and stokvels typically charge interest rates of 360-480%. By requiring low-income households to take out loans one is burdening them with debt commitments that could have an impact on the health and nutrition of family members, and there is also the risk that the borrower could lose their property if they are unable to repay the loan. In summary, small loans can play an important role in the upgrading of housing, but they could never have a major role to play in financing the upfront costs of infrastructure and topstructures.

## **(iii) Savings**

Low-income households are only likely to be able to save a significant amount for housing over a number of years, but it is still important that households make a contribution to their own housing. This could prevent a relationship of passive dependency developing and it could make the household more aware of the value of the property, which may help to avoid problems of people selling properties at nominal prices (40). For unemployed people, sweat equity could be contributed as a substitute.

## **(b) Ongoing costs associated with housing**

There are four main types of ongoing cost associated with housing. These costs are borne by the local authority (or other service provider) and/or the household. These costs need to be affordable for both the household and the local authority (or other service provider).

South Africa has an unemployment rate of 34% (1996 census) and it can be expected that a substantial proportion of households in low-income housing projects will not be able to afford to pay any significant monthly costs associated with housing. Apart from the maintenance cost of the actual building, which is typically 1-4% of the construction cost per year (20), the main ongoing costs are:

- Cost of energy
- Cost of water
- The cost of other services provided by local authority, i.e. rates

### **(i) Energy**

Energy costs typically form 20-40% of low-income households' monthly expenditure (16). There is a wide range of different types of energy that can be used, the most important of which are electricity, gas, paraffin and solar energy.

#### *Electricity*

Electricity is the cheapest option for powering TVs, hi-fis and refrigeration, and electric lighting is the safest and cheapest lighting option (52,75).

At the low levels of demand on low-income housing sites, however, the supply of electricity is likely to be uneconomic and has to be cross-subsidized (7). Electricity may therefore actually be more expensive to provide than, e.g. solar energy, gas or paraffin, but the cost structure is such that the end user costs are lower.

Electricity primarily results in people investing in "entertainment appliances", such as television sets and hi-fis (74). Many households continue to use paraffin and candles for lighting in order to cut down on electricity costs. A study found that electricity "has not yet made a significant contribution to the quality of people's lives. The main reason is that the costs involved in the use of electricity are too high for low-income households", i.e. the costs of wiring the houses and the costs of appliances (48). This results in the under-utilisation of electricity in newly electrified low-income households.

In environmental sustainability terms, it is difficult to compare electricity and fuels such as wood, coal and paraffin, as although using electricity may reduce pollution and health risks, it results in pollution and health risks in the areas where coal-burning power stations are located (63).

In all, although electricity is desirable, it can not be considered to be a minimum basic need, and other forms of energy are often more appropriate. For example, gas is more appropriate for cooking and space-heating, and solar energy is more appropriate for water-heating (52).

[NOTE: Space-heating, water-heating: geyser or hot water cylinder]

## **(ii) Gas and paraffin**

Paraffin is the most common fuel of urban low-income households. This is because it is widely available and can be bought in small quantities, which is suited to the needs of the poor, and paraffin appliances are widely available.

Gas is currently a minor source of domestic energy in South Africa, but it has vast potential. For cooking and space-heating, gas is cheaper and more efficient than electricity (52,63).

It is estimated that tighter price regulation and better distribution systems for paraffin and gas could result in reducing the costs of these fuels by up to 40% (16). Increasing their safety, such as promoting the use of child-resistant containers for paraffin could reduce the health risk. There are health risks associated with gas as well, but these can also be reduced, for example, the build up of NO<sub>2</sub> can be prevented by adequate ventilation (see section...).

### **(iii) Renewable energy sources**

Solar energy is particularly suited to heating water. Typically, 40% of electricity costs are for heating water (34), and solar water heaters can greatly reduce this cost. Solar energy can also be suitable for lighting and for TVs and hi-fis. Although solar energy is far cheaper than electricity in the long term, the capital costs of electricity have to be borne by the household whereas the capital costs of electricity are highly subsidised. The granting of small loans to enable households to acquire solar energy could assist households to make large savings on energy costs in the long-term.

Biomass...

[NOTE/DIAGRAM: With a photovoltaic panel on the roof and a charge controller with a 12V storage battery, solar energy can be a cheap source of power for lighting, radios and TVs.]

### **(iv) Energy efficient design**

A large proportion of energy used in buildings is for climate control to produce comfortable indoor environments, e.g. heaters in winter and fans in summer. The building envelope can be designed to take advantage of the regional climate, e.g. by allowing solar gain and preventing heat loss in winter - orientation, adequate roof overhangs, ceilings, insulation. Energy efficient designs can result in large savings, e.g. In a housing project in Kimberley, it was estimated that energy efficient design resulted in a 70% saving in space heating costs (27).

### **(ii) Water**

Water is a basic need and needs to be cross-subsidized so that everyone has access to a minimum supply. Higher consumers need to pay more per unit of water consumed. For example, Durban Metro Water does not charge for the first 6 kilolitres of water used by a household per month (200 litres per day) in order to provide for the basic needs of poor households. This means that Durban Metro Water's yard tank option, which provides 200 litres of water per day, is free. From 6 to 30 kilolitres per month, the 1998/9 water costs were R1.76 per kilolitre for a semi-pressure connection and R2.53 per kilolitre for a full pressure connection (plus there was also a fixed charge of R18 per month for a full pressure connection). Every kilolitre of water consumed beyond 30 kilolitres per month was charged for at R5.06 per kilolitre. This tariff structure is a good example of cross-subsidization and ensuring the provision of basic services to the poor.

[NOTE: kilolitre (kl) = 1000 litres (l); For a typical household of five people, the minimum water supply necessary for health purposes is 100 litres per day, or 3 kilolitres per month. For a five person household with an in-house water connection and waterborne sewerage, typical water consumption would be about 750 litres per day, or 22.5 kilolitres per month.]

### **(iii) Rates**

Rates are used to cover the costs of services which can not be directly charged for, plus it covers the general running costs of the local authority. e.g. the cost of sewage treatment and the maintenance of the sewerage system is indirectly charged for as a part of rates. Rates on low-income properties are generally low, e.g. in Durban's Inner West Council area they were typically R20-25 p.m.

Many low-income households are unable to pay rates because of unemployment or irregular incomes, however, and risk losing their properties. There should therefore be a rebate for rates on properties with a value equivalent to the subsidy amount. For example, the Inner West Council now has a rebate of R7500 on land and R7600 on buildings, i.e. beneficiaries of new housing projects will not pay rates.

[NOTE: Rates: property taxes levied by local authorities on owners of properties within the local authority's boundaries. The tax is usually calculated on both the estimated value of the land and the estimated value of the buildings. Rates are the main source of revenue for local authorities.]

### **(c) Affordability of community facilities**

At typical thresholds and capital costs, the amount of money that should be spent on providing basic community facilities (schools, clinics, halls and libraries) is almost 70% of the money spent on housing subsidies (53). This amount of money is currently not available for investment in community facilities. Even if it was, restricted budgets mean that the operating costs would not be affordable (the annual operating cost of a community facility can be more than the capital cost of the building). As a result, the consolidation of funding to enable multi-purpose facilities to be provided, and the sharing of facilities by schools and communities, is important (61). There also needs to be sufficient funding available for the provision of parks, playgrounds and public squares.

## **5.4.2 Construction and maintenance processes**

### **(a) Construction**

Housing provision must contribute to economic development/job creation. Ideally it should also empower households and facilitate future housing consolidation. Table... shows the main options for housing delivery. Table ... shows the cost of different housing delivery models as derived from a small sample of projects in the mid-1990s, including all subsidised and "hidden" costs.

#### **HOUSING DELIVERY MODELS (56)**

<b>Delivery option</b>	<b>Description</b>	<b>Suitability</b>
Conventional contractor delivery	Labour and materials contractor builds house;	Suitable for households who can afford a mortgage

	architect/clerk of work certifies completion	loan and who want a high quality product
Small contractor delivery	Labour only small contractor builds house; owner responsible for ordering materials; housing advisors provide advice and certify completion	Suitable for households who cannot afford mortgage loans, and where there are a sufficiently large number of small builders and building materials suppliers in an area
Assisted mutual help	Members of households are trained and managed by a construction manager in the building of houses; materials are bought in bulk for the project	Suitable for households who cannot afford mortgage loans, where there are very small builders and building materials suppliers in an area, and where members of households are willing to be involved in the construction process
Self build	Members of household buy their own materials and build their own houses; they may require advice and assistance, and may hire people to undertake certain construction tasks	Suitable for households who cannot afford mortgage loans, and who either already have building skills or who want to acquire building skills

#### COSTS OF DIFFERENT HOUSING DELIVERY MODELS (56)

Housing delivery model and project	Delivery cost per m <sup>2</sup> , i.e. excluding materials (R/m <sup>2</sup> )	Typical cost of 30m <sup>2</sup> house, assuming materials cost of R200/(R/m <sup>2</sup> )
Contractor built	410	18300
Small contractor delivery	80	8400
Mutual help	150	10500

Conventional contractor delivery is usually required for multi-storey housing and infrastructure delivery, but the small contractor delivery model has proved to be the most suitable model for low-income housing delivery. This delivery model is able to deliver houses suited to the needs of individual households, while simultaneously creating local employment opportunities and providing households with the skills to be able to upgrade their housing in the future.

A good example is the community based housing consolidation project in Southern Pinetown which produced over 1000 houses in 1996-1998 (56). Four housing advisors, based at local housing advice offices were employed by the local Development Trusts to provide advice to beneficiaries on how to spend their subsidies. Beneficiaries had complete freedom of choice as to building materials, which builder to hire and house design. Beneficiaries used

order forms showing the amount of their subsidy to order materials from the four building materials suppliers accredited to the project and to hire accredited small builders. The local authority housing advisor certified completion of the structures, enabling payment to be made to the suppliers and builders.

Over 90% of beneficiaries preferred to use small local contractors, because they were considerably cheaper and their standard of construction was often better than that of the formal contractors. Less than 5% of beneficiaries built their houses themselves. Up to 60 builders and their building teams worked on the project, providing employment for over 200 community members. Building teams consisted of a builder and two or three employees, and each team could build two houses per month.

The support costs of the housing advisors, housing advice centres and training of builders was approximately R250 per beneficiary, which is well within the current limit of R570 per beneficiary which can be granted for housing support in terms of the government's People's Housing Process programme.

Competition between suppliers and builders, close monitoring of prices by the project managers, and the fixing of builders prices ensured that the cost of a house built in the project during 1998 was 30% less in real terms than the real cost of the same house would have been to an individual household in 1995 before the project started.

In addition to the training of small builders to participate in the project, the training of suitable small-scale materials manufacturers and suppliers should also be an integral part of a project. Small-scale materials manufacture and supply, e.g. of concrete blocks, other concrete components, timber, sand and stone, has enormous potential for job creation. For example, small-scale brickmaking uses 20 times as much labour per equivalent output as a modern brickmaking factory (67).

## **(b) Maintenance**

Suitable systems need to be set up for maintaining infrastructure. They need to be efficient and contribute to local job creation. Water and sewerage system maintenance need to be handled by a centralised authority, but there is the potential for local job creation in solid waste removal, the maintenance of public space, and road and drainage maintenance. Households need to know how to correctly use and maintain water and sewerage systems and how to correctly store solid waste.

### **(i) Solid waste management and management of public open space**

Solid waste management is essential to ensure that refuse that accumulates on plots and in public spaces, such as roads and road verges, is regularly removed and adequately disposed of. The lack of waste removal can be a health hazard, damage the natural environment and negatively impact on the

appearance of an area. Solid waste can also block drains, which can increase the risk of flooding.

Labour intensive solid waste collection by local contractors is potentially the cheapest and most efficient way of ensuring effective solid waste management and can also contribute to job creation (60). There is also an enormous scope for community involvement in recycling, as the sorting and pre-processing of solid waste, e.g. plastics, is ideally suited to small scale enterprises (69). Organic matter can be fed to animals raised in intensive conditions or composted for sale to farmers and horticulturists.

## **(ii) Road and Stormwater Drain Maintenance**

Roads require considerable maintenance. Over a 15 year period, in real terms, the maintenance of a tarred road will cost 80% of the initial capital cost (7). The most efficient and cost effective way to maintain roads and stormwater drains is to employ locally based people responsible for regular preventative maintenance.

The maintenance activities required to stabilise the seal infrastructure of roads are all very labour-intensive, and can increase the life of the seal (the road surface) by up to 50% (10). Most roads in low-income housing projects have very small volumes of traffic, and the biggest problem is stormwater damage. The camber of the road has to be maintained in order to prevent water pooling in the road, which ultimately results in potholes. For gravel and earth roads, the maintenance team can reduce dust nuisance by keeping the surface level and compacted, and by ensuring that speeds are kept to appropriate levels by maintaining speed bumps. All drainage systems are prone to blockage from silt, sand and gravel, and regular cleaning is required

## **5.6 Contextual suitability**

The adequacy of housing is about more than meeting basic needs - it is also about social, cultural and political issues and responding to the biophysical environment. This is why what is considered adequate housing in South Africa may differ considerably from what is considered adequate in other parts of the world. Community participation and context specific design is essential to ensure that housing in new housing projects is appropriate for that particular community in that particular place and time.

For example, in South Africa the 51/6 and 51/9 township houses are seen as the standard type of house, and although this perception needs to be changed it can not be ignored. Similarly, houses built of concrete block have a higher status than houses built of wattle and daub, even though the thermal performance of the wattle and daub house may be superior. Part of the reason for this is because concrete blocks are seen as modern and urban, whereas earth construction is seen as being rural and old-fashioned (62).

[NOTE/DIAGRAM: 51/6 House]

The Minister of Housing has been quoted as saying “We are looking at structures that accentuate our culture and reflect our being, for example, using Ndebele art in roof and bathroom tiles or Zulu art in textiles” (50). This is important, but cultural appropriateness is about more than providing ethnic-style wall graphics - it is about the underlying processes in the design and production of houses (36). Culture is also not something static, but something dynamic that is always changing. One of the most important aspects of cultural appropriateness that needs to be taken into account is the existence of extended families. Housing subsidy policy should cater for the existence of extended families rather than encourage the splitting of extended families into smaller units. Allowance should also be made for households who wish to pursue a semi-rural lifestyle in peri-urban areas, e.g. growing vegetables and keeping chickens.

South Africa also has a variety of climatic zones, and each climate has different requirements for well performing buildings and settlements (20). For example, in Cape Town’s mediterranean climate, buildings with heavyweight cavity walls and in a dense, compact layout is most suited to the cool wet winters and windy summers. In Upington’s desert steppe climate, compact urban layout with buildings grouped together for mutual shading is necessary and dust catching, deciduous trees for shade and public fountains for evaporative cooling are desirable. Protection from the rain is not necessary.

In Durban’s sub-tropical climate, wide verandas or eaves overhangs to shade walls and openings, and protect outdoor living space from rain, are desirable. Space around dwellings to allow for airflow is also desirable, although may not always be possible due to the need to make optimum use of space. Although lightweight walls shaded by wide eaves overhangs are conventionally recommended as being suitable for hot, humid climates, heavyweight construction seems to perform well. In Gauteng’s highveld climate, a compact layout, with protection for pedestrians against high UV radiation and summer rains is necessary (20).

## **5.7 Tenure**

The most essential aspect of adequate housing is secure tenure, i.e. the right to occupy a piece of land or a dwelling without fear of arbitrary eviction.

Section 2.5.12 of the RDP states that the “government must ensure a wide range of tenure options including individual and collective home ownership as well as rental, and facilitate a wide range of housing types. Sufficient affordable rental housing stock should be provided to low-income earners who choose this option.”

Low-income housing delivery in South Africa has been successful in delivering individual ownership of plots to large numbers of people. New legislation, e.g. the Prevention of Illegal Eviction From and Unlawful Occupation of Land Act

19 of 1998, has also ensured greater protection for residents of informal settlements against evictions. There needs to be more emphasis on finding suitable mechanisms to increase collective ownership and rental housing, however. Many households have a rural base and do not necessarily want to live permanently in urban areas (58).

Tenure is one of the areas in which gender discrimination is most rife. For example, in some mutual help projects in South Africa it was found that although the woman usually builds the house herself, and uses her own money, the completed house is often registered in a man's name (55). Innovative ways need to be found to overcome problems like this. In Costa Rica, for example, all government housing subsidies must be registered in the name of both the man and woman if they are married. If the couple is not married, it is registered in the woman's name (6). This is an attempt to recognise that women are the homemakers and ultimately bear responsibility for looking after children. The need to protect the tenure rights of women is especially important because of the large number of woman-headed households. For example, the research for this report showed that 32% of the households in the four areas evaluated were headed by single women.

## **6. ENSURING RIGHT TO ADEQUATE HOUSING IS MET**

National, provincial and local government, civil society and households have to work together to ensure that the right to adequate housing is fulfilled.

### **6.1 National/Provincial Government**

The provision of adequate housing is essential to improve people's lives, but it has to go hand in hand with job creation. Housing can play a role in income generation (building, building materials manufacture, urban agriculture, refuse removal, maintenance) but the provision of adequate housing without creating more jobs for the people who will live in them is ultimately self-defeating. The main roles of national and provincial government in ensuring the the right to adequate housing, apart from setting up a legislative framework, should be providing capital subsidies for housing, infrastructure and facilities, and formulating appropriate guidelines.

#### **6.1.1 Capital subsidies**

The purpose of subsidisation should be to enable households that can not afford to get a mortgage loan from a bank to be able to still have access to a minimum level of adequate housing. Three types of subsidy from national government for provision of adequate housing are necessary:

- capital subsidy to local authority for bulk infrastructure, connector and internal infrastructure, preparing site for building upon; up to a maximum per dwelling unit.
- capital subsidy to beneficiary for cost of plot and topstructure; fixed amount per dwelling units - uniform for projects involving communities, linked to loan on a sliding scale for individuals. There should always be some community contribution in the form of savings, or labour for unemployed beneficiaries.
- capital subsidy for community facilities, depending on size of projects. e.g. any project of more than a certain number of households should receive funding for at least a park/playground and a small multi-purpose community facility. Arrangements need to be made for the operation and maintenance of the community facilities and open space.

Government subsidisation should mainly be used for infrastructure and a basic core structure, and savings and loans should be used to extend the core structure. Ideally the subsidy should be enough for labour and materials for an adequate topstructure as well, but if the subsidy is not enough the focus should be on infrastructure.

The subsidies for bulk and internal infrastructure and multi-purpose community facilities should go directly to the local authority for approved projects. A tender based approach to providing infrastructure would be far more efficient and cost effective than the current application based approach to development, as there would be competition between contractors. There could be various ways for determining what the level of subsidisation is:

- A certain percentage of actual cost depending on the financial status of the local authority (for example, average per capita income of residents)
- For horizontal equity the subsidy could be a variable amount linked to a defined standard of infrastructure, although this is difficult to administer.

The topstructure subsidy should be the responsibility of the household. Households who do not qualify for mortgage finance from banks should be eligible for this subsidy, and the criteria for eligibility should be regularly revised to keep pace with changing conditions. The grading of the subsidy amount according to income needs to be carefully dealt with to avoid the current situation where households in the R1501-2500 income category are effectively worse off in terms of housing affordability than households in the R1500 or less category. The subsidy must also be inflation linked, so that households that have to wait for housing are not doubly penalized. Importantly, extended families consisting of more than one unit should be able to combine subsidies together, so that the splintering of extended families into smaller nuclear family units is not encouraged as at present.

The basic minimum standards of infrastructure in urban areas for housing should usually be:

- some form of waterborne sewerage, or some form of on-site sanitation where waterborne sewerage is not economically feasible and where site sizes and conditions are suitable.
- some form of in-house water supply. Yard tanks may be suitable on larger plots in peri-urban areas, where there would be adequate space for soakaways and where there is more potential for recycling waste water for use in growing vegetables.
- a hierarchy of multi-purpose roads and public spaces, surfaced where necessary, and with open lined stormwater drains. Roads or paths should only be designed as drains in isolated cases and where absolutely necessary
- streetlighting, with the potential for house electricity connections for those who want it and can afford to make full use of it. Electricity is essential for multi-storey housing, e.g. communal stairwells.
- private and communal green space, i.e. trees and other vegetation

The minimum topstructure should be a 20-30m<sup>2</sup> core house with a toilet and shower. Multi-storey flats need to be at least 30m<sup>2</sup> in size.

### **6.1.2 Standards and guidelines**

Standards essentially make consolidation more difficult. They encourage overcrowding, because people are less able to extend their houses to the required standards. Having standards that are too high can be considered to be a violation of the right to housing (29?).

Of more use would be guidelines to assist local authorities, developers and communities to ensure that good quality urban environments are produced in new housing projects. The guidelines would need to incorporate planning, design, environmental, social, economic, welfare, education, health and political factors. Recommendations could include layout, energy efficient design, the importance of vegetation, and environmentally friendly stormwater management. They must be cross-sectoral and holistic and must ensure sustainable development. Some of these guideline would not involve any additional expenditure. Others may have a higher initial cost but be cheaper in the long term.

Other possible interventions at national/provincial level include:

- promoting cheaper and safer gas and paraffin and promoting cheaper solar energy and biogas.
- promoting the conservation of water
- promoting the recycling of solid waste

### **6.2 Local Government**

Section 9(1) of the Housing Act of 1997 states that “Every municipality must , as part of the municipality’s process of integrated development planning, take all reasonable and necessary steps within the framework of national and provincial housing legislation to ensure that the inhabitants of its area of jurisdiction have access to adequate housing on a progressive basis.”

In terms of the overall urban environment, local government is responsible for urban planning, providing and operating infrastructure, certain community facilities and co-ordinating public transport:

- Planning: in terms of the Housing Act, local government must identify and designate land for housing development. Local government also has a role to play in ensuring the urban quality of new housing developments, for example, in terms of layout and design.
- Providing and operating infrastructure: in terms of the Housing Act, local government must provide bulk engineering services and revenue generating services in so far as such services are not provided by specialist utility suppliers.
- Access to facilities: local government is responsible for providing facilities such as parks, halls and clinics, and should also encourage public transport.

In terms of specific projects, local government is responsible for ensuring that sufficient new housing is delivered and that informal settlements are provided with temporary services until new housing can be delivered:

- Housing delivery: the Housing Act says that local authorities must “initiate, plan, co-ordinate, facilitate, promote and enable appropriate housing development in its area of jurisdiction”. Local authorities can act as developers, enter in joint ventures with developers or facilitate other role players. Municipalities can become “accredited” to administer the subsidy scheme in their area of jurisdiction. Municipalities can expropriate land for housing development where necessary.
- Temporary services: the provision of new housing will take time to eliminate the housing backlog. Local government needs to provide temporary services to existing informal settlements, e.g. communal standpipes and communal toilets. In order to facilitate the upgrading of new informal settlements in the future, suitable vacant sites could be laid out with plots and road reserves and made available for informal settlement. It would therefore be easier to upgrade such a settlement when housing subsidies became available.

Local government also should create the necessary preconditions for adequate housing conditions to be maintained and for households to be able to upgrade their housing:

- Cross-subsidization: There should be a lifeline tariff for the poor/low consumers and there should be a rebate for properties up to the value of the subsidy.
- Education: local government has an important role to play with regard to citizen education about rights and responsibilities. Education about the use and maintenance of water supply systems, sanitation systems and energy systems is also important.
- Technical advice: Local government has a role to play in giving advice to households on obtaining and upgrading housing. This can include technical advice and acting as a “one-stop” information service for information on building materials suppliers and builders. In a consolidation project in Southern Pinetown, the encouragement of competition between

suppliers, together with close monitoring of prices, resulted in the real cost of a standard bundle of building materials decreasing by 34% over a three year period (56).

- Support for builders: providing training and bulk buying facilities for builders, to ensure that households have greater access to affordable builders and building materials.

### **6.3 Civil society**

Local government can not provide for the needs of everybody on its own, and is not always right. Strong civil society is necessary to balance and complement strong local government, and a multi-faceted approach to development also necessitates the involvement of a strong civil society. Strong civil society needs to consist of autonomous community based organizations (CBOs), supported by strong non-governmental organizations (NGOs). Different types of CBOs need to play different roles in civil society, as the roles of “watchdog” over local government and of a developmental agent are inherently contradictory. Both types need support from NGOs.

[NOTE: CBOs and NGOs]

#### **6.3.1 Watchdog CBOs**

It is important to have politically independent CBOs and NGOs that can act as a check against the actions of government and monitor the role of government, for example with respect to the right to adequate housing. Involvement in local government participation structures such as Development Forums is also important. These forums have the potential become a way for civil society to influence local government, for example, with regard to integrated development planning and budgeting.

The support of NGOs is critical, in order to build the capacity of CBOs to engage with local authorities on a more equal footing.

#### **Developmental CBOs**

The existence of autonomous developmental CBOs, supported by NGOs, is essential in order to fill in the gaps left by state policies and the market and to demonstrate alternative “bottom-up” approaches to development (71). The research for this report showed that residents of informal settlements realize that their CBOs need to play an important role in development. Many comments by respondents referred to the need for CBOs to take a leading role in development, either in partnership with, or with the assistance of, the local authority, for example, “the community must come together to help one another to develop themselves with help from local authorities”.

The two types of developmental CBOs that are emerging are the CBOs that are evolving into permanent community development organizations (CDCs) and the new community self help organizations, such as the Homeless People’s Federation (57). Both types of developmental CBOs are important,

as they serve different interest groups - the former are more suited to fairly cohesive, well established communities with efficient CBOs, while the latter are more suited to marginalized members within communities. Both types of CBO require initial technical support from NGOs.

#### **5.4 Households**

Individual households have a responsibility to ensure that people's rights are met, as the government alone can not ensure this. The duties of people in relation to economic and social rights include respecting the economic and social rights of others and paying taxes and service charges (30).

There needs to be a partnership between local government and households to ensure the ongoing adequacy of housing, for example, with regard to maintaining houses and plots, maintaining water supply and sanitation systems and preventing littering and pollution. Households need to be aware of what adequate housing is and the ways in which it can be improved. These are important life skills that perhaps need to form part of the school curriculum.

Residents need to be able to participate in the development process, they need to be prepared for homeownership (or tenancy), and they need to be aware of their rights and responsibilities. Subsidies to households should be empowering rather than disempowering. The subsidy should give the household the opportunity to provide for their own housing need, which will also result in the household requiring the necessary skills to consolidate their housing in the future (e.g. buying materials, dealing with builders). There is a strong argument for the direct participation by beneficiaries in housing projects, rather than just of a small group of leaders who may not be representative and accountable.

#### **5.5 Conclusion**

In conclusion, this report is intended to raise awareness about the wide range of issues involved in fulfilling the right to adequate housing, and is not intended as a rigid set of standards. This report primarily attempts to increase awareness of what adequate housing is and how it can be achieved, because the will amongst local authorities and communities to improve housing conditions exists, but there needs to be greater focus on what the ends and the means are. Ideally, more resources are necessary, but even without additional resources there are many things that can be done to improve the adequacy of new housing developments. South Africa is entering an exciting period in which there is a greater emphasis on delivery, and it is hoped that this report will play a small role in contributing towards fulfilment of the right to adequate housing in South Africa.

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## **ABOUT BESG**

The Built Environment Support Group (BESG) is a not-for-profit organisation working with people in urban areas of KwaZulu-Natal who are disadvantaged in their access to resources. It has as its purpose the demonstration of alternative, innovative and sustainable ways of improving living environments with a focus on housing. This is achieved through technical, educational, research and policy advocacy and administrative support. BESG was founded in 1982 and now has more than thirty staff members. It has offices in Durban and Pietermaritzburg and is an affiliate of the Urban Sector Network (USN).