

Informal settlement integration, the environment and sustainable livelihoods in sub-Saharan Africa

Mark Napier

Programme for Sustainable Human Settlements, Council for Scientific and Industrial Research (CSIR), South Africa

Abstract

This paper forms one part of the CIB funded research on “Understanding the interface between the environment and sustainable livelihoods in the integration of informal settlements in Asia, Latin America and Africa: a review of current thinking and practice”.

The African continent is rich in its diversity of forms of informal settlement. This paper covers the sub-Saharan region. It is acknowledged from the outset that the diversity of settlement situations cannot be fairly treated in a paper of this kind, however a number of characteristic trends in experiences of informal settlement formation and upgrading emerge that differentiate the sub-Saharan region from others.

The aim of the paper is to present an overview of the continent from an African perspective, by providing base information about socio-economic conditions, the types and quantities of informal settlements occurring, and the types of disasters and other environmental hazards which predominate.

The method employed to give structure to this paper is the pressure-state-response model commonly used in state of environment reporting.

Keywords: informal settlements; sub-Saharan Africa; sustainable livelihoods; environmental hazards.

INTRODUCTION¹

The African continent is rich in its diversity of forms of informal settlement. Sub-Saharan Africa particularly has the highest percentage of people living in situations of poverty (UNCHS, 2001:15), who experience daily the realities of vulnerability to a wide range of environmental hazards.

The aim of this paper is to present an overview of the sub-Saharan African region from an African perspective, by providing base information about socio-economic conditions, the types and quantities of informal settlements occurring, and the types of disasters which predominate.

The paper covers the sub-Saharan region in that most development statistics are arranged in this way, and because North Africa does not experience the same levels of absolute poverty as sub-Saharan countries do (see Appendix). It is acknowledged from the outset that the diversity of settlement situations cannot be fairly treated in a paper of this kind, however a number of characteristic trends in experiences of informal settlement formation and upgrading emerge that differentiate the sub-Saharan region from others.

The method employed to give structure to this paper, is the pressure-state-response model commonly used in state of environment reporting². This suggests the main sections for the paper.

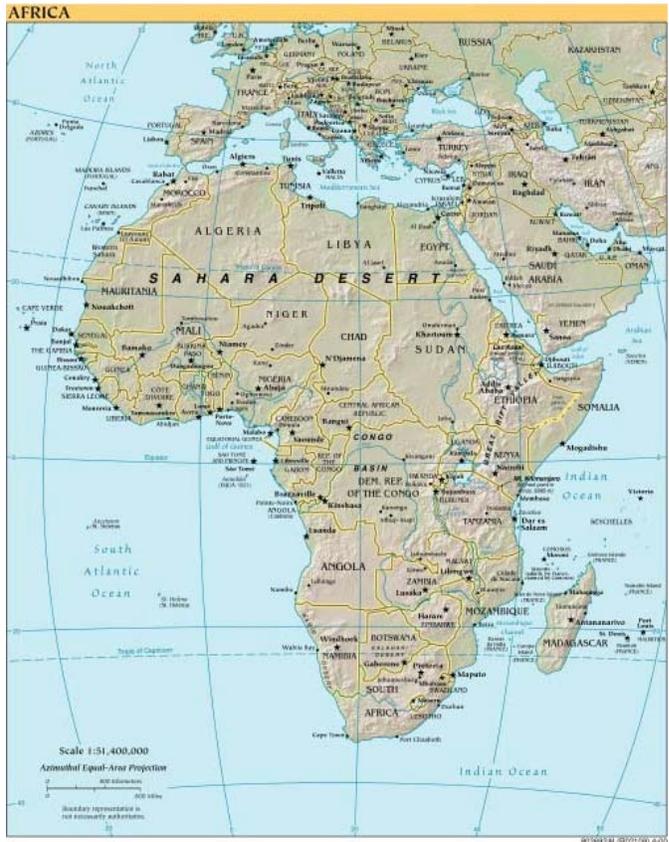


Figure 1: Map of Africa (source: CIA, 2000)

¹ This paper forms one part of the CIB funded research on “Understanding the interface between the environment and sustainable livelihoods in the integration of informal settlements in Asia, Latin America and Africa: a review of current thinking and practice”.

² The pressure-state-response method was developed by the Organisation for Economic Co-operation and Development (OECD) during the late 1980s. It has been expanded into a wider framework including driver-pressure-state-impact-response. <http://www.oecd.org/env/indicators/index.htm>

“Socio-economic conditions and settlement formation” describes the drivers and pressures which lead to the formation and maintenance of informal settlements.

“Location and condition of informal settlements” looks at the state of informal settlements in sub-Saharan Africa.

“Environmental impacts of informal settlements” starts to discuss some of the impacts of settlements on the environment and those on the inhabitants.

“Responses to informal settlements and hazards” discusses some examples of responses by urban development agencies to informal settlements, poverty and disasters.

PROBLEM STATEMENT

Much has been written about types of tenure in the African context and a number of recent conferences have made important contributions to an understanding of the dynamics of urban informal settlements in Africa³. It is evident that definitions of squatting and informal settlement within ‘formal’ cities as used in other country contexts are inappropriate to capture the shades of legality of houses and settlements occurring in many African cities. At the same time, it is clear that residents are regularly exposed to the harsh realities of spatial and environmental marginalisation that accompany living in informal settlements.

There are a number of important points of departure for an understanding of informal settlements in Africa. Firstly it is clear that, given the numbers of people moving to African cities and the capacity of public and private institutions to supply land for settlement, “It is not possible for the majority of the population, and especially low-income groups, to have tenure security by using centrally registered rights such as freehold” (Fourie, 1999). The absence of an adequate formal response to the growth of informal settlements can be linked to a series of factors including the transition from colonialism, the increase in urban poverty and the impacts of structural adjustment and other neo-liberal programmes on formal welfare ‘safety nets’ for the poor (Mabogunje, 1999).

Secondly, in this context of rapid urbanisation, growing income poverty and human poverty, and a lack of appropriate responses by governments, land under customary

³ For example, the Third Conference of the International Forum on Urban Poverty, UNCHS, Nairobi, 12-14 October 1999, and the N-AERUS Workshop on "Coping with informality and illegality in human settlements in developing cities " Belgium, 23-26 May 2001).

tenure controlled by traditional leaders in many countries is an important mechanisms for semi-formal urban expansion (Fourie, 1999). A broader set of voluntary associations to which people in informal settlements subscribe also assist in the assimilation of an urban lifestyle (Mabogunje, 1999; Tostensen *et al*, 2001).

For these reasons, the discussion of informal settlements, urbanisation, tenure, poverty and legality in the African urban context (particularly in sub-Saharan Africa) have been necessarily intertwined with discussions of traditional ways of doing things, and how these have become embedded into the formal, post-colonialist systems of urban governance.

Overlaid onto an understanding of informal settlements in Africa, is a large amount of emerging information about the social and health impacts on residents of living in such settlements, and the impacts in turn of such settlements on the surrounding environment. These are treated in more detail in the section on the “Location and condition of informal settlements” below.

SOCIO-ECONOMIC CONDITIONS AND SETTLEMENT FORMATION

Before entering the central discussion of the extent and nature of informal settlements, it is necessary to understand key aspects of the socio-economic context in which they occur. What ‘drivers’ and ‘pressures’ lead to the formation of informal settlements in the first place? Key to understanding and ultimately responding or intervening effectively in such situations is a grasp of how people living with poverty manipulate assets portfolios (Moser, 1998). The concept of sustainable livelihoods is useful here. “A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base” (DFID, 2000).

Socio-economic conditions

The underlying causal mechanisms of unequal urban patterns are rooted in the historical growth of urban areas⁴ but they find their clearest expressions in the nature of poverty in African cities. However poverty is defined, urban poverty is growing: “sub-Saharan Africa has the highest proportion of - and the fastest growth in human poverty” (UNDP, 1997:3). More recent observations by the UNCHS are that “In Africa, the percentage of people living in poverty declined but the actual numbers increased. The new estimates indicate that Africa is now the region with the largest share of people living below US\$1 a day” (UNCHS, 2001:14). This translated into an estimated 290 million people living below US\$1 per day in 1998. The following table shows the

⁴ The emergence of typically African city structures is discussed below.

percentages of poor for the various regions, again demonstrating that sub-Saharan Africa has the highest proportion of people living in poverty.

Region	Estimated percentage of poor for 1998
East Asia and the Pacific	15.3%
Eastern Europe/ Central Asia	5.1%
Latin America/ Caribbean	15.6%
Middle East/ North Africa	1.9%
South Asia	40%
Sub-Saharan Africa	46.3%
Total	24%

Source: UNCHS, 2001:15 citing World Bank Poverty Sheets, 2001

Whilst not by any means the most urbanised continent in the developing world, and despite large gaps in recent demographic information, it is still asserted that “Africa has certainly had among the most rapid population growth and urban change of any of the world’s regions in recent decades...” (UNCHS, 1996:84). The same report points out that during the first half of the 1970s Africa’s population growth exceeded Latin America and the Caribbean for the first time.

Other, broader measures of human development, such as the Human Development Index⁵ by the UNDP, show that sub-Saharan Africa also fares the worst, having an index of 0.464, the lowest of all global regions (see Appendix, Table 1). Clearly, within the region there is great diversity (see Appendix, Table 2), with some countries being located in the medium development category. However, as a region, poverty and inequality are widespread and extreme.

⁵ Which includes factors such as life expectancy, education, and GDP (i.e. the UNDP Human Development Index (HDI)),

Coupled with the fact that Africa is also the continent with the highest numbers of people living with HIV and AIDS⁶, the impacts on the livelihoods of households living in such conditions are extreme, and likely to stretch established coping mechanisms beyond their limits. As an AIDS researcher has commented⁷, the era of the 'over-extended' family has been entered. Certain categories of society are most adversely affected by these pressures, including women, children, the aged and people with disabilities.

There is also growing evidence that poverty is no longer confined to rural areas. The process of the 'urbanisation of poverty' has been extensively demonstrated (Wratten, 1995; UNCHS, 2001:14), and is likely to continue to increase "...alongside the rise of urban populations, unless urban managers and governance systems improve urban planning, recognise the rights of poor people, and create the space, services and opportunities for poor people to improve their conditions and participate in the distribution of the benefits that the urbanisation process has to offer" (DFID, 2000).

The more direct question for this study is whether urban poverty is concentrated in urban informal settlements. This seems self-evident. Certainly given definitions of poverty that are not simply generated by counting household incomes, by definition the lack of access to adequate shelter, water, sanitation, drainage and solid waste removal⁸ which accompanies the occupation of unconsolidated and un- or under-serviced informal settlements means that human poverty is indeed concentrated very explicitly in such settlements.

In summary, the information reviewed would indicate that the region under discussion is characterised by poverty, in all its dimensions. It is therefore to be expected that this would be visible in the forms of inadequate shelter which are prevalent in most African cities, and that household coping mechanisms in the context would be geared to coping with such exigencies. Just how widespread inadequate shelter is will be discussed in the following section.

⁶ According to the World Health Organization, 34.3 million people in the world have the AIDS virus, 24.5 million of them in sub-Saharan Africa. In his opening address to the Tenth International Conference on STDs (Sexually Transmitted Diseases) and AIDS in Africa, Dr Hiroshi Nakajima, Director-General of the World Health Organization (WHO) said, "With only 3% of the world's population, 12 African countries, extending from the Central African Republic through the Great Lakes region to South Africa, account for nearly 55% of cases of HIV infection in the world" (<http://www.who.int/archives/inf-pr-1997/en/pr97-89.html>).

⁷ Personal communication with Mary Crewe of the Centre for the Study of AIDS in Africa.

⁸ This observation is based on the definition of 'housing poverty' from UNCHS (1996).

Settlement formation

Many cities grew spectacularly during the 1960s and 1970s (or immediately following the ending of colonial rule in many countries) through rural-urban migration. Annual growth rates of some African cities were as high as five to seven percent, implying a doubling of population every ten to fifteen years (UNCHS, 1996:87; Mabogunje, 1999).

By the 1980s and 1990s cities were continuing to grow, but natural population increase had become the main contributor. Within countries, large cities tended to slow down in their growth and medium sized cities to take over as the main loci for rapid expansion. This was accompanied by a deterioration in physical infrastructure and services as the extension of urban services failed to keep pace with growth in demand (UNCHS, 1996:86). The formal job market shrunk as large civil services were scaled down and many utilities were privatised. The UNCHS describes the impact on activities within the city:

These developments are reflected in the continuous growth of spontaneous, popular housing areas; in the ever increasing numbers of ambulant hawkers and food-sellers on every corner of many downtown African cities; in the increase in the size and number of open-air markets; in the pervasiveness of small-scale, privately owned public transport vehicles that have taken over the market from the monopoly state-regulated bus companies; and in a virtual explosion of small trades and services dealing with almost every facet of life in the city." (UNCHS, 1996:86).

Not only did informal activities increase, the gap between the old, colonial city and the new, often informal areas grew, as did the gap between rich and poor.

Such rapid agglomeration, coming at a point in history of these countries when their economies remain largely fragile and not much transformed from what they were under colonial rule, could only mean that whilst a small minority might be easily accommodated both residentially and in terms of employment opportunities, the majority have to fend for themselves as best as they can. Against the background of the colonial urban planning, African cities became segregated into "European" and "African" areas. The former was fairly protected because of its layout and substantial building but it came to be surrounded by a sprawling and exploding tract of poorly built and inadequately serviced residential quarters which in turn extended into expansive shanty towns providing rudimentary shelter and employment opportunities for the new urbanites and those whose fortunes still keep [them] at the lower end of the urban economic ladder. (Mabogunje, 1999:2)

Certainly in countries such as South Africa, these inequalities were particularly marked, and continue to characterise post-independence cityscapes despite policies designed to reverse such characteristics.

The main drivers of the future formation and ongoing consolidation of informal settlements are likely to be the pressure to find a place (even if marginal) in the urban economy, and to then consolidate one's position in that spatial economy over time, arranging one's assets in ways which minimise the impacts of internal and external shocks (Moser, 1998) which might reverse the gains secured.

LOCATION AND CONDITION OF INFORMAL SETTLEMENTS

Informal settlements are defined in a variety of ways, but there is general agreement on their core characteristics. Such settlements are created through a process of unassisted self-help and tend to have two or more of the following characteristics when they are initially created: 1) most houses are self-built by the families occupying them using initially temporary building materials, 2) the settlements are illegal in some way (whether that is the land tenure, the house construction or both), 3) the settlements are unserviced, and 4) are mostly occupied by people living in situations of poverty (based on Gilbert and Gugler, 1992).

These key descriptors of settlements are not exhaustive and there would be many more questions about the context of settlements such as physical location and conditions, institutional context (government and non-government supporters or opposers of informal settlement), legislative and regulatory conditions, and the like. Processes of regularisation or upgrading of settlements (i.e. formal recognition and interventions) also need to be described in each case.

Information about the current state of informal settlements, informal housing and squatting in sub-Saharan Africa is fairly patchy, at least at a statistical level. Only some countries report to organisations such as the United Nations, and some that do report probably underestimate the numbers of houses in informal settlements. There are at least three recognised measures of informal housing that can be applied as measures indicative of the prevalence of informal settlement: tenure, housing construction and access to services.

Tenure

Firstly there is home ownership or land tenure. Non-legal occupation of buildings or land is termed 'squatting'. The UNCHS defines this indicator as follows: "Housing tenure refers to the rights of households over the housing and land they occupy, particularly rights over land". This includes "Households in squatter housing, or housing which has no title to the land on which it stands, and who pay no rents" as well as "Households in squatter housing who pay rent" (UNCHS, 1997). The graph charts levels of urbanisation against levels of squatting in sub-Saharan countries for which data is collected (see figure 2).

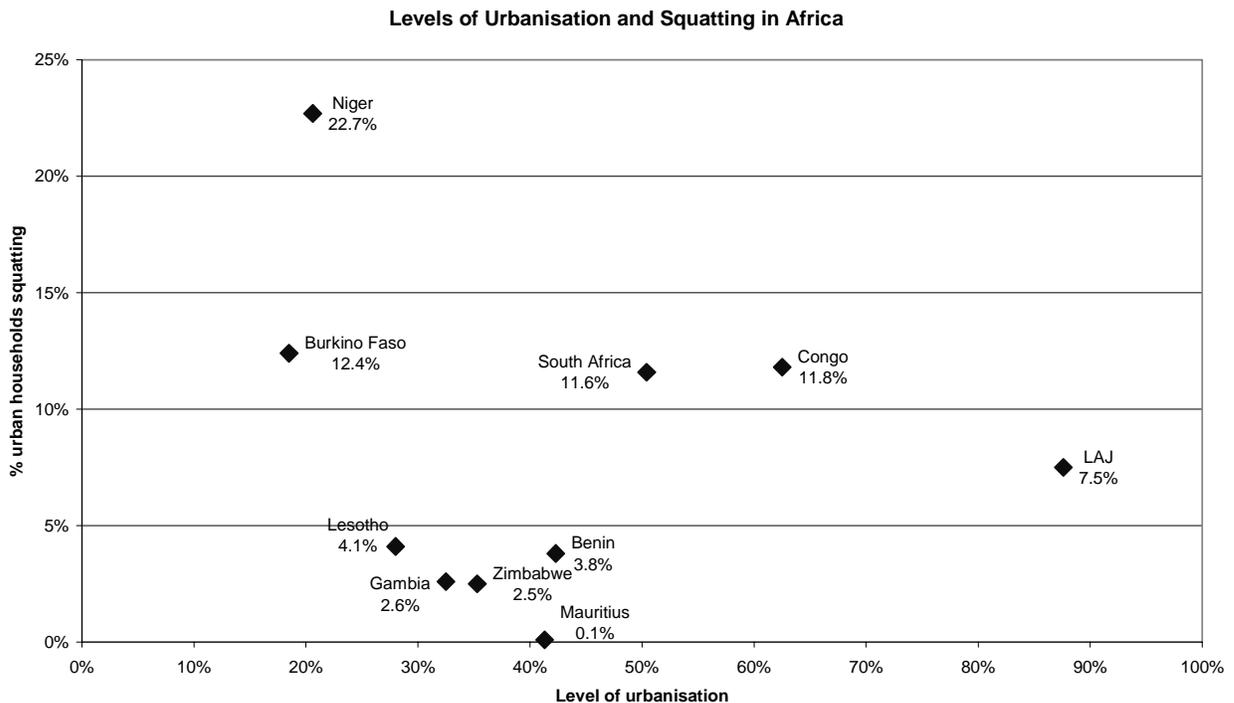


Figure 2: Levels of urbanisation and urban squatting in Africa (based on UNCS, 2001)

There is no clear correlation between levels of urbanisation and squatting. For example, the three countries which have similar levels of squatting (11% to 12%), have widely varying levels of urbanisation (Burkina Faso, 18.5% urban; South Africa, 50.4% urban; and Congo, 62.5% urban). The causes of squatting cannot therefore be simplistically linked (at least using this small sample) to movement to urban areas. The graph also illustrates the wide range of levels of squatting within one region. When the figures for the countries are taken as an average, the number of urban households without legal tenure averages almost 8%, which is probably a low estimate.

Materials

Secondly, the types of materials used to construct housing is indicative at least of the prevalence of shack housing. The UNCHS defines permanence as "... the percentage of dwelling units which are likely to last twenty years or more given normal maintenance and repair, taking into account locational and environmental hazards (e.g. floods, typhoons, mudslides, earthquakes). ...The indicator generally refers to wall structure rather than roof durability..." (UNCHS, 1997).

In 1997, the UNCHS estimated that about 39% of houses in sub-Saharan Africa were impermanent and that 51% of housing was not in compliance with local laws or standards (UNCHS, 1997). Later reports have figures for only two sub-Saharan countries, with Niger having less than 2% of its housing built from temporary materials (but 98% in the 'basic' category), and South Africa having 18% of all housing and 25% of urban housing built of temporary materials.

Basic services

Thirdly, lack of access to basic *urban* services such as water and sanitation can also be taken as an indicator of the prevalence of unserviced settlements. The following graph isolates urban households which have no access to piped water in the house, and those which do not have a flushing toilet within the house (see figure 3). While these are slightly crude measures, and it is not clear how many residents have no access to potable water or adequate sanitation, this is the information that is available.

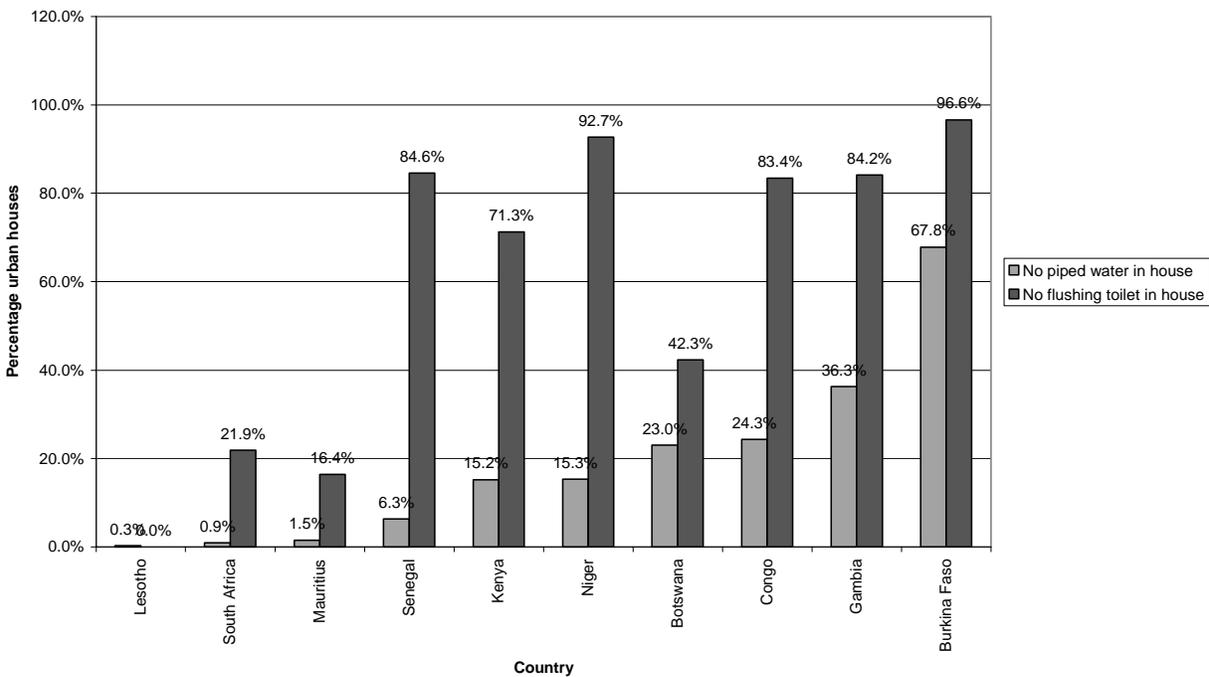


Figure 3: Urban housing units by water and toilet facilities (source: UNCHS, 2001:283)

It should be noted that this included only urban households, and there tends to be less access to piped water in rural informal settlements. Connection averages for whole countries, rather than only urban areas, therefore tend to be worse than those reported on here.

Secondly, many urban households which nominally have piped water, have systems which have not been maintained and are therefore not fully operational. This would then affect the operation of waterborne sanitation systems in those households. The assumption that flushing toilets is an ideal level of sanitation is not implied here, and for these statistics to be more meaningful, more detailed country studies would be necessary. It would be useful if unserviced, partly serviced, and fully serviced urban informal settlements could be isolated, but in the absence of this information, these figures have been used as surrogates.

Other figures which are perhaps more useful are that on average in the year 2000, 85% of urban people (as opposed to households) in Africa had access to “improved water sources”. The average for the access of urban people to “improved sanitation” was 84%⁹. There was, however a wide range of situations in different countries as evident from the graph (see figure 3).

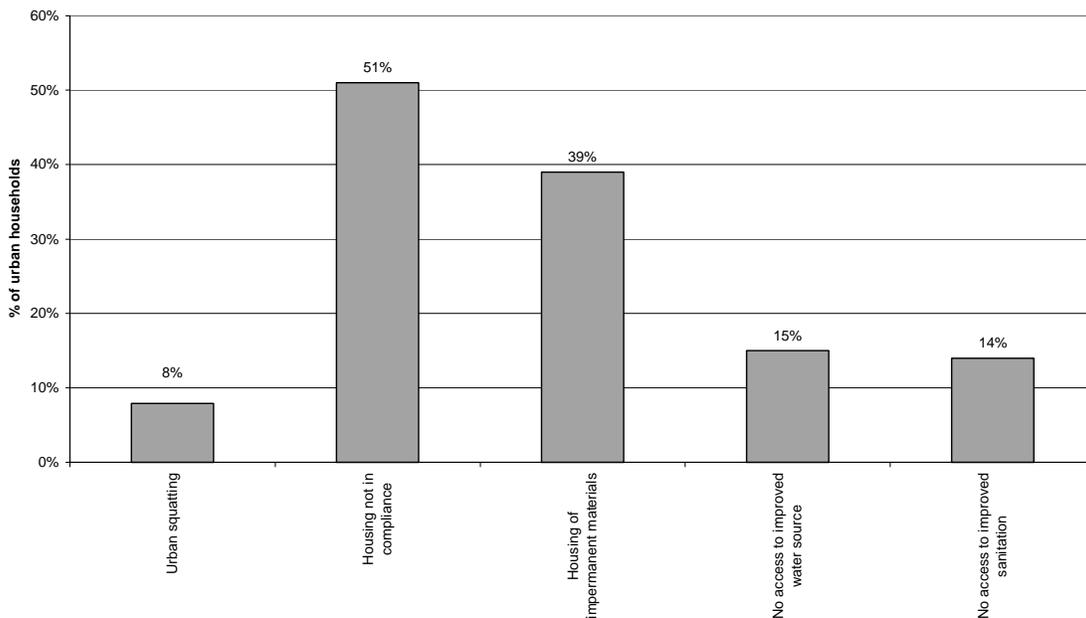


Figure 4: Summary of informal settlement levels in the sub-Saharan region

To summarise (see figure 4), the state of informal settlements in sub-Saharan Africa, based on the available figures, is that 8% of urban households are defined as squatting (or not having legal land tenure), that 51% of housing is not in compliance with local regulations, that almost 40% of all urban housing is built from impermanent materials,

⁹ Personal communication with Anna Ballance, working with UNEP, Nairobi, September 2001.

15% of people not having access to improved water sources, and that 14% of households not have access to improved sanitation of any kind.

Clearly there are other measures relating to informal housing that can be considered, such as access to space in informal housing compared to other types of housing, the production of new informal housing, evictions from squatter settlements (see UNCHS, 1997). The figures used above have, however, been assessed to be the most significant indicators of the extent of the phenomenon and some data is available in these areas.

Types

These figures give no indication of the more qualitative characteristics of urban informal settlements in sub-Saharan Africa. As alluded to above, with the colonialist influence which remains as a legacy in many of the countries under discussion, the division between formal and informal is often not clearly delineated. Customary forms of land tenure existing at the edges of cities sometimes become places for informal settlement establishment and eventual inclusion into the city. Fourie describes this process:

Customary areas adjacent to urban areas often supply tenure security to low-income groups and facilitate the extension of the urban area, albeit informally. Partnerships between local authorities and traditional leaders, instead of competition, facilitate the regularization of these customary areas and their incorporation into the urban area. Such partnerships help to strengthen weak administrative systems. (Fourie, 1999:3)

Urban informal settlements not located on traditional land can also be organised along quasi-traditional patterns of popular government (Hindson and McCarthy, 1994), where 'shacklords' or earlier settlers control the conditions on which later entrants to the area may access land, as well as having a de facto role in the day to day running of settlements.

In addition to customary and other local bodies or individuals who may assist in the granting of a variety of informal tenure types, Mabogunje (1999) describes the importance of the role of voluntary associations of people to strengthen the coping mechanisms of households moving to urban areas, and to assist people to integrate into an urban lifestyle (see also Tostensden et al, 2001).

Occupation of customary land, and 'freestanding' informal settlements have been discussed. There are also many more hidden forms of informal settlement. In many African countries, the low cost townships built by colonialist governments still exist, and host additional households in backyard shacks. People living in these conditions often have limited access to basic services and smaller amounts of habitable space than the main owners or municipal tenants (see Tipple, 2000). Similarly the occupation of inner

city buildings by squatters, previously more of a European phenomenon, is becoming more common in large African (and Latin American) cities (Mathee and Swart, 2001). This is referred to as 'indoor informal settlements' by these authors.

So far then, there have been five clearly identifiable types of urban, informal settlements:

- informal settlements with traditional tenure (informal housing on customary land);
- freestanding informal settlements (informal housing on urban land without legal tenure);
- backyard shacks in formal areas (informal housing amongst formal housing);
- informal housing on serviced land (sites and services where housing is still inadequate);
- indoor informal settlements (illegal occupation of buildings).

The variations which should be overlaid onto this typology include:

- the location of the settlements, whether in the urban core, on the urban fringes, or just beyond the formal urban boundary;
- the levels of servicing, which relates also to,
- the level of recognition by authorities, and therefore the likelihood of a response in the form of services or broader regularisation processes which give legal tenure.

It needs to be reiterated that such descriptions of typologies are too broad for the many countries making up the sub-Saharan region. Further secondary and primary reporting will enhance the picture presented here. The drivers and pressures that lead to the formation and growth of informal settlements are likely to be almost unique to each settlement, let alone to each city or town. Similarly their impacts and the official responses are country specific.

What is also unique to specific localities are the socio-cultural advantages and disadvantages of living in informal settlements, or what social and economic functions informal settlements play for residents. The link between informal settlement formation, consolidation and sustainable livelihoods, or how people use informal settlements as a way to survive, is also an area in need of focused, settlement-specific study.

ENVIRONMENTAL IMPACTS AND INFORMAL SETTLEMENTS

Of particular interest to this investigation, are the numbers and types of settlements which are located on marginal land which is potentially threatened by natural or manmade disasters, and the number of settlements where the housing and settlement layout mean that they cannot withstand such disasters. The discussion of the environmental impact of informal settlements is two-sided (see figure 5). On the one

hand, the conditions experienced in informal settlements because of both external threats from natural and manmade disasters, and the internal threats deriving from the types of temporary housing and lack of services, have their direct impacts on the residents. This aspect assesses informal settlements for their appropriateness as human habitats. On the other hand, the cumulative impacts of informal settlements in

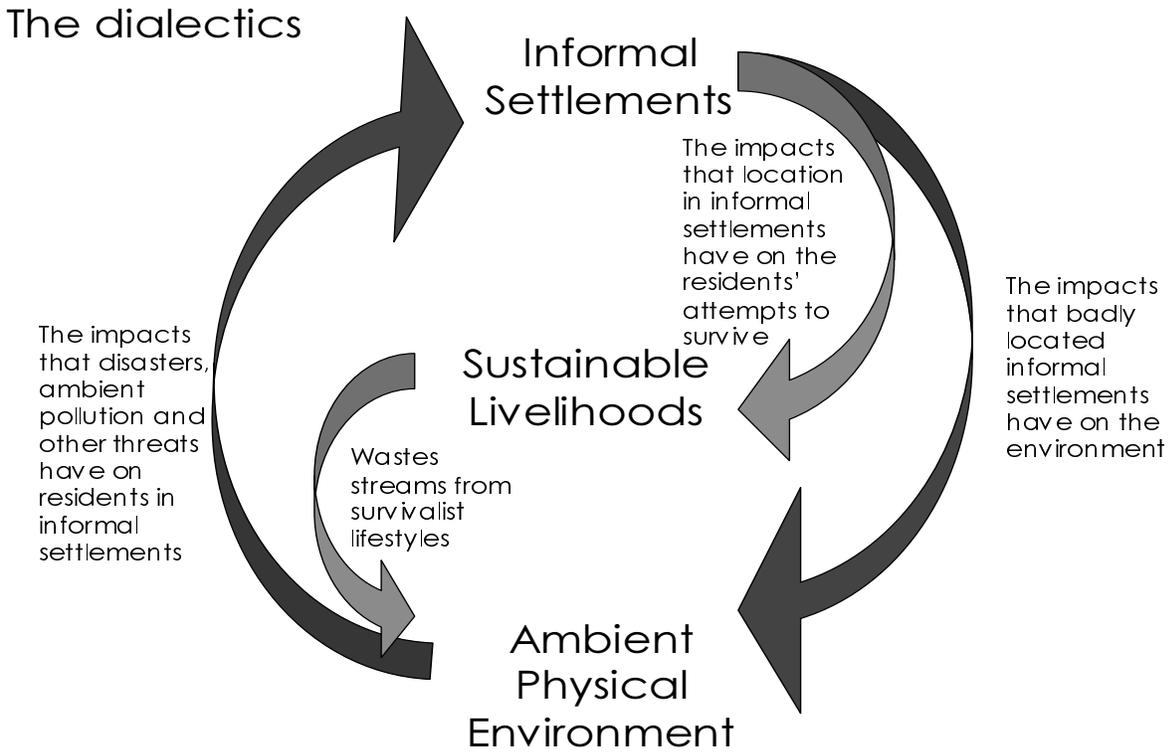


Figure 5: Informal settlements and environmental impacts

certain locations are significant for the city and region in which they are located, although there is a debate about how much worse these impacts are than those from formal settlements.

Impacts of living in informal settlements on residents

In its report on Sustainable Development and Healthy Environments (WHO, 1999b), the World Health Organisation states that environmental threats to human health can be divided into “traditional” hazards, associated with lack of development, and “modern” hazards associated with unsustainable development. Here both external and internal hazards are described.

Traditional hazards related to poverty and “insufficient” development.	Modern hazards related to “development” and unsustainable consumption of resources
Lack of access to safe drinking water	Water pollution from populated areas, industry and intensive agriculture
Inadequate basic sanitation	Outdoor air pollution
Food contamination	Solid and hazardous waste accumulation
Indoor air pollution from using coal or biomass fuel	Chemical and radiation hazards
Inadequate solid waste disposal	Emerging and re-emerging infectious disease hazards
Occupational injury hazards in agriculture and cottage industries	Deforestation, land degradation and major ecological change
Natural disasters	Climate change, stratospheric ozone depletion and trans-boundary pollution

It is clear that the majority of the ‘traditional’ threats are related to location in settlements where housing or services are inadequate. It is also clear that vulnerability to hazards which is based on access to resources changes the types of hazards (and the severity of impact) for societies in the developed and the developing world.

External environmental threats

Dealing first with the external environmental threats from natural and manmade disasters, there are a wide range of events which are common in the sub-Saharan region. Many types of disasters affect households whether resident in informal settlements or not, but there are two reasons that informal settlement dwellers are vulnerable. The one is that the settlements are often located in hazardous situations, and the other is that more general threats are harder to cope with and have greater physical and socio-economic impacts on people living in poverty in informal settlements.

Global statistics on natural and non-natural disasters demonstrate the relative vulnerability of poor countries. While more than half of the natural disasters reported between 1991 and 2000 were in countries of medium human development, two-thirds of those killed were from countries of low human development and only 2% were from countries of high human development (IFRCRCS, 2001). Put in another way, “22.5 people die per reported disaster in highly developed nations, 145 die per disaster in nations of medium human development, while each disaster in low human development countries claims an average of 1,052 people” (IFRCRCS, 2001).

Unlike the poverty and human development indicators reviewed above in section 0 which showed sub-Saharan Africa to be the worst region, in the area of natural disasters 83% of fatalities between 1991 and 2000 were from the Asian region. 211 million people were affected annually by natural disasters, two thirds by flood, and one fifth by famine. The most fatal natural disasters were floods, windstorms and droughts (accounting for more than 90% of deaths). Human conflict, on the other hand, claims over three times more lives than natural disasters (IFRCRCS, 2001).

UNEP sums up the situation:

As a result of improvements in early warning systems and disaster preparedness, the number of people killed by natural disasters each year has decreased over the course of the last century. Unfortunately though, this has not been able to prevent an increase in the amount of people whose livelihoods have been adversely affected by disasters. In the space of just fifty years this figure has jumped from 50 million people a year to a present average of just over 200 million. This alarming figure can be attributed to a number of factors. The frequency of large natural catastrophes has risen steadily over the last few decades, and with the added variable of climate change we can expect this trend to continue over this century. People, and in particular the poorest strata of society, have also become more vulnerable to disasters as populations have burgeoned in cities and coastal areas, two of the most exposed areas to natural disasters. Another major factor is the continuing degradation of ecological systems, which in many cases removes vital natural defence systems against storms and floodwaters. The linkages between poverty and natural disasters are apparent. On a global scale it is developing countries that are most prone to their catastrophic effects.

(<http://www.globesa.org/conventionunep.htm>)

The picture above covers the global impacts of disasters particularly on people living in poverty. What then are the specific disasters that affect the region?

- The whole of Africa is severely affected by flooding and drought.
- Earthquakes are more common in North Africa than elsewhere on the continent.
- Cyclones occur regularly, affecting mostly the Western Indian Ocean islands.
- Conflicts over resources and ethnic or religious differences also exact a heavy toll in the sub-Saharan region¹⁰.

In addition, settlement related manifestations of such disasters find their impact through mudslides, flooding of settlements, the collapse of buildings, hunger and malnutrition, and vulnerability to attack or coercion to participate in conflicts. This can lead to the

¹⁰ Personal communication with Anna Ballance, working with UNEP, Nairobi, September 2001.

displacement of people followed by the formation of new settlements (formally or informally) to accommodate refugees. It is at this point, when people have to flee their houses and settlements, that the environment/ livelihood interface can be said to have been destroyed. Survival strategies have been stretched to their limits and can no longer be sustained.

The numbers of people affected (displaced, killed, impoverished) and the regions most prone to natural and non-natural disasters are reported on in detail elsewhere (e.g. World Disasters Report 2001, IFRCRCS, 2001).

In general terms, it is the confluence of disasters and areas of high population density which is increasing the impacts that disasters have on expanding human settlements. Apart from conditions of poverty which limit coping strategies, the effects of disasters are exacerbated for people and property in informal settlements because of their location on marginal land. It is common for such settlements to be located on unstable slopes, in natural watercourses and in areas where flooding is common. The hardening of ground surfaces accentuates the effects of flooding¹¹.

Internal environmental threats

Dealing secondly with the more localised hazards coming from within settlements and housing, these kinds of environmental hazards are often discussed under the heading of health, safety and security.

Informal housing constructed typically from materials such as timber, corrugated iron, plastic sheeting and other temporary materials has been shown to carry with it the health problems associated with “damp, thermal inefficiency, overcrowding and the siting of informal housing in poor locations. Other problems are related to poor ventilation rates in informal houses and the risks associated with paraffin (kerosene)...” (CMCHD, MRC, HST, 1996:xii).

Lack of access to services also plays a major part in the spread of disease. In the developing world the five major childhood conditions that are responsible for 21% of deaths, are diarrhoea, acute respiratory infections, malaria, measles and perinatal conditions (WHO, 1999a). These medical conditions are linked to factors such as limited access to clean water, poor sanitation, the use of biomass fuels and overcrowding. The biggest cause of death is acute respiratory infection linked to indoor air pollution and overcrowding, and this is where the most urgent intervention is required (Napier et al, 2000a).

¹¹ Personal communication with Anna Ballance, working with UNEP, Nairobi, September 2001.

The combination of high density settlements, the burning of biomass fuels, lack of piped water, temporary building materials and lack of access to municipal services, means that many informal settlements are particularly prone to outbreaks of fire. Shack settlement fires are certainly common in places such as Cape Town where weather conditions at certain times of the year increase the spread of fire¹².

Another dimension of environmental threat is that residents of informal settlements are particularly vulnerable to crime. While property crimes might seem to be limited because of a lack of assets possessed by residents, the impacts of burglary are no less significant as a result of the lack of access to insurance and finance, and the consequential vulnerability of poor households to shocks. Flimsy structures make burglary and indeed a range of other violent personal crimes more possible. Overcrowding and lack of privacy within informal housing can also lead to higher levels of abuse and assault. Similarly, unmanaged open tracts of land where vegetation is dense or which are not surveyed, present opportunities for violent crime (Landman and Lieberman, 1999). The responses by state officials to crime occurring in informal settlements is limited because of the lack of vehicle access to many parts of settlements, lack of access to telephones, lack of street lighting, and difficulties in locating street addresses. Lack of reporting of crime because of distance to police stations and fear of retribution (both from perpetrators and officials), also means that a large proportion of criminal activity remains hidden. In the absence of formal responses to combat crime, local forms of crime prevention often arise (e.g. vigilantism, people's courts) which can be supported by the forms of unofficial local government which occur in many settlements¹³. In many ways the occupants of informal settlements are particularly vulnerable to victimisation and, again, the impacts on the poor can be dire.

These then are the environmental hazards which people living in informal settlements commonly experience. *Informal settlements and housing are, in many cases, not suitable human habitats, despite performing important social and economic functions for the residents in the absence of other alternatives.* What impacts might such settlements have on the surrounding environment?

Impacts of informal settlements on the ambient environment

In environmental reporting, there is sometimes the assumption that informal settlements and poverty are the main contributors to environmental degradation in developing countries. The National State of the Environment Report for South Africa suggests discouraging "harmful land-use practices" in all sectors and "providing alternatives to

¹² See for example "The children of fire" in Weekly Mail and Guardian, 2 February 2001.

<http://www.sn.apc.org/wmail/issues/010202/OTHER52.html> and <http://www.icon.co.za/~firechildren/>

¹³ Personal communication with Karina Landman of CSIR, Pretoria, September 2001.

informal sector activities which use environmental resources unsustainably" (DEAT, 1999).

One set of impacts of informal settlements derives from their location. In some cases, informal settlements occur on land close to formal (or informal) economic and social opportunities, and are therefore well integrated into the urban transport system. This implies improved efficiency of movement. However, where colonialist (and apartheid) urban settlement patterns still have an effect, or where urban land markets continue to reinforce these patterns, and where informal settlements occur on the urban fringe beyond the reach of a more involved state apparatus, greater amounts of movement and therefore resource consumption and pollution are generated (Napier, 2000).

There is little doubt that the resource requirements for the construction of informal settlements (particularly in areas where semi-traditional construction methods are used in urban informal settlements), the collection of food, the collection of fuels for heating indoor spaces and cooking food, and even activities like the preparation of traditional medicines (DEAT, 1999) are more directly reliant on local, natural resources than would be the resource requirements of wealthier and more formalised urban residents. Lack of drainage, lack of waste removal, and lack of access to clean energy sources, mean that the wastes generated from human activities are not removed far from settlements (a service performed by municipal services for formal areas) but become visibly evident in the pollution of air, water and soil in the immediate vicinity.

McGranahan et al (2001) describe this situation at a city level by characterising the environmental burdens of cities as follows:

- Poor cities – localised, immediate and health threatening.
- Middle-income cities – citywide or regional, somewhat more delayed, and a threat to both health and (ecological) sustainability.
- Affluent cities – global, intergenerational and primarily a threat to sustainability (2001:14)

They go further, and develop the following stylised model (see figure 6). It implies that if the three well establish environmental indicators of levels of sanitation, concentrations of sulphur dioxide and emissions of carbon dioxide are considered, it becomes evident that the environmental burden of cities changes as they become more affluent. McGranahan et al acknowledge that this is an oversimplification of the situation. For example, a well managed but poor city will have a different environmental impact to a badly managed city. However, the characterisation is useful in general discussions of this nature.

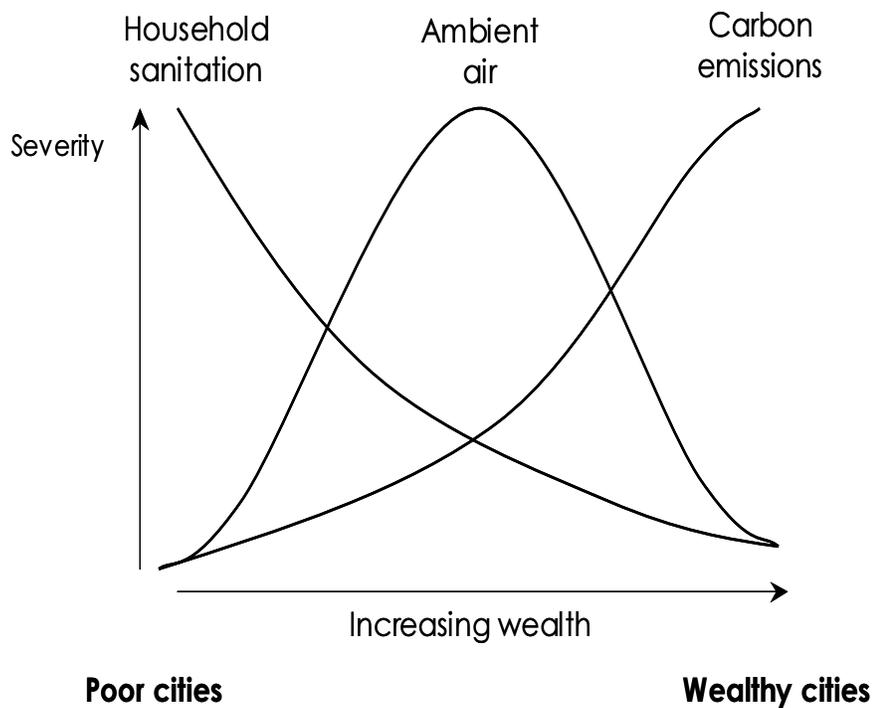


Figure 6: Changes in environmental burden (source: McGranahan et al, 2001:17)

For these reasons, informal settlements in poor cities appear to have greater and more immediate impacts on the ambient environment than other settlement types. It is true that it is more difficult to manage the wastes emerging from informal settlements. It is also difficult to reduce dependency on, or to manage the collection of, natural materials which in some cases can lead to the loss of biodiversity in an area. In addition, fringe informal settlements often imply the unplanned extension of the urban area into arable or otherwise environmentally valuable land. However, if the levels of resource consumption are measured comparatively with formal areas (see example in table below), then it must also be said that the volumes of waste generated per capita, although localised, are negligible in comparison to wealthier areas of the city. The exception of course is the detrimental and direct impact of poor indoor air conditions from the burning of biomass fuels, as mentioned above.

Example of levels of resource consumption and waste generation in South Africa

	Consumption				Waste
	Access to floor space	Water consumption	Electricity consumption	Car ownership	Waste generation
Suburban	33m ²	750ℓ per person per day	900kWh per month	490 cars per 1000 population	0.8 - 3kg per capita per day
Township	9m ²	50ℓ per person per day	83kWh per month (prepaid card system)	30 cars per 1000 population	0.2 - 0.8 kg per capita per day
Informal settlement	4 - 5m ²	< 50ℓ per person per day	As above where settlement formalised	1000 population	< 0.2kg per capita per day

Source: Napier, 2000

Given that the generation of (liquid and solid) wastes collected by municipalities in many cities in Africa is out-stripping the capacities of local authorities to collect, treat, and dispose of them¹⁴, it would seem that the levels of consumption should receive greater attention if the waste cycle is to be rendered more sustainable. Similarly the reduction, re-use and recycling of wastes needs greater attention particularly in African countries if the burden on (often inappropriately located) tip sites is to be reduced. In contrast to more formal types of settlement in African cities, it has been noted that recycling of wastes is more common in informal settlements where many home-based enterprises make a business out of re-using or recycling wastes from other sectors (Napier et al, 2000b¹⁵).

It seems that the more direct threats to the health and wellbeing of the residents of informal settlements deriving both from the external threats from natural and non-natural disasters, and from internal threats such as indoor air pollution, fire and crime, would be of greater importance from an impact perspective than the need to address the impacts of the settlements on the broader environment. Having said that, the two taken together provide more than adequate motivation to address the issues of improving the quality of life of people in informal settlements as well as a basis on which to prioritise official responses.

Having addressed the nature of the impacts of unserved informal settlements located on marginal land, and discussed whether their contributions to pollution are large enough to be important. The next section looks at how development agencies have responded and ways in which these responses supported or undermined sustainable livelihoods.

¹⁴ Personal communication with Anna Ballance, working with UNEP, Nairobi, September 2001.

¹⁵ And personal communication with Dr Kate Gough, University of Copenhagen, July 2001.

RESPONSES TO INFORMAL SETTLEMENTS AND HAZARDS

There has been a long history of official responses to urban informal settlements, and a relatively more recent coordinated or structured response to poverty and disasters. One of the aims of this project is to document contemporary best practice on informal settlement responses, but this paper will stop short of this for now, and rather describe the types of responses that have characterised African cities over the last four decades.

Responses to informal settlement

Starting with responses to informal settlements, the earliest self-help commentators based their housing theories on growth patterns and construction methods that they were seeing in informal settlements (Turner, 1976; Abrams, 1964). Latin America tended to lead the world in the application of more enlightened responses in place of the previous approach of the mass removal of squatters. As theories and practice became entrenched, donor agencies began to formulate policies to address inadequate shelter in developing countries. Countries in the sub-Saharan region did not escape the influence of large international funding bodies such as the World Bank, the International Monetary Fund and a range of bilateral donor agencies. In that sense, responses to informal settlements have been to some extent shaped by the (neoliberal) policies of these bodies (Durand-Lasserve, 2000). Many theorists have sketched the changes in approach to the funding of housing responses by large donor agencies over the years (e.g. Pugh, 1997; Mayo and Angel, 1993). Nabeel Hamdi has summarised it in a very graphic way (see figure 7) according to the spread of funding to more people through new policies.

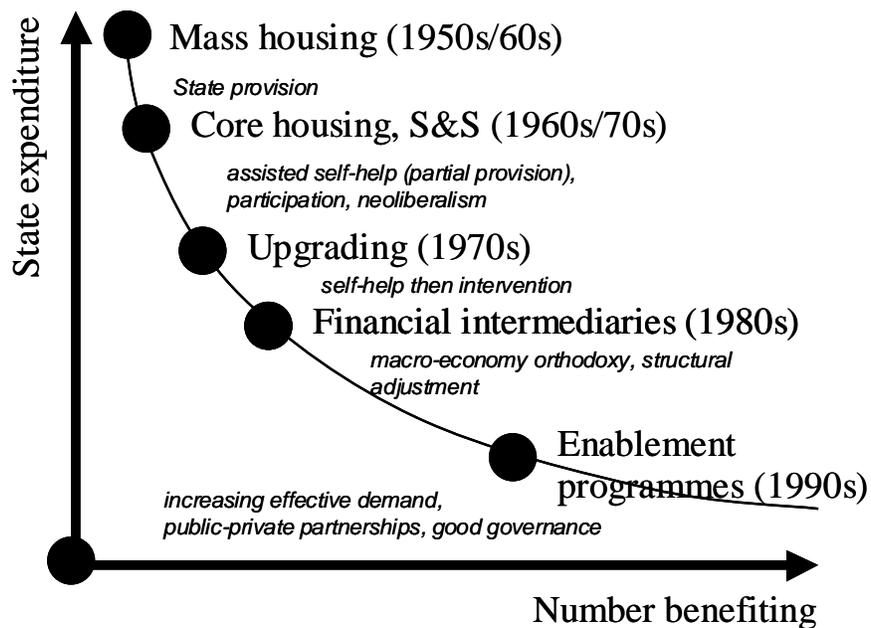


Figure 7: Stages in donor funding (based on Nabeel Hamdi lecture)

Public rental housing was provided by many governments before and sometimes after independence in Africa.

After the demise of mass housing in most countries in the 1950s and 1960s, partial housing provision of various types was attempted, including core housing and sites and service schemes. This type of response was common in Africa (Siebolds and Steinberg, 1982; Davidson, 1984), but only reached South Africa in the 1980s and 1990s (but for different reasons - Napier, 1998). As even core housing and sites and service provision failed to keep pace with demand (Burgess, 1992:83), various *in situ* upgrading approaches were tried as responses to informal settlements with notable early examples in Lusaka, Zambia (Martin, 1983; Laquian, 1983). In Asia, slum upgrading programmes were tried earlier and much learning and experience has been garnered there (e.g. Angel *et al*, 1983). Ultimately, funding shifted from direct project funding, to sectoral interventions (through new financial products offered by intermediaries, and other broad market interventions).

After independence, many African countries continued to apply the master planning approach. "While these plans often had an important influence on the overall approach to land-use planning in the central areas of the larger African cities, they failed to capture the speed and direction of growth in the peripheral areas..." (UNCHS, 1996:88). Public housing programmes tended to be fairly small, and the costs of building formally escalated beyond the means of most poor urban residents. As a result informal settlements continued to grow as land and infrastructure supply lagged behind demand. Continued dependence on building by-laws and codes based on European models meant that the mechanisms to respond to the situation were inappropriate to the needs of the African city. This failure to respond appropriately (for a number of good reasons), created tensions between civil society and local government, and opened up spaces for non-government bodies (e.g. voluntary associations) to operate circumventing the ineffective forms of local government (Simone, 2001). With lack of capacity and resources, many governments have been reduced to pursuing a pragmatic approach. Early on, and sometimes more recently, the policy was to bulldoze informal settlements and forcefully remove residents (common in Zimbabwe, and Apartheid South Africa, as well as under the new government). More often governments gave *de facto* recognition to some informal settlements or followed a crisis response approach evicting people when informal settlements encroached on other (more powerful) urban interests.

Whatever the economic policy of the (international or local) funders of urban informal housing and infrastructure upgrading, or the capacities and ideologies of the local governments involved, the issue of informal settlements has been addressed in a variety of (good and less constructive) ways. Rarely has a complete view of the state of existing livelihoods been used to design local interventions. It is this variety of applied approaches that this project seeks to analyse for their sensitivity to sustainable

livelihoods particularly in situations where the response has been prompted by exposure to the variety of environmental hazards which informal settlements experience. Despite the introduction of the environmental and poverty dimension to the development of new ways to address the needs of people living in informal settlements, it is important not to lose sight of the ideological systems which operate in the countries and international agencies involved in informal settlement upgrading. Similarly, an understanding of community dynamics on the ground is essential.

Responses to hazards

In terms of responses to environmental hazards and disasters, there is some agreement that sub-Saharan Africa has been slow to develop a coordinated response. As the Red Cross observes,

“Africa is ill prepared to cope with the effects of man made and natural disasters. This situation is compounded by poverty, illiteracy and the high prevalence of some of the worst diseases (AIDS, malaria, and cholera) which seriously affect the lives of Africans, particularly the most vulnerable.” (Situation report: African red Cross and Red Crescent Health Initiative, appeal no. 01.01/2000, situation report no. 1, 12 January 2001, http://www.ifrc.org/cgi/pdf_appeals.pl?emerg00/01010001.pdf)

In light of the types of disasters most affecting sub-Saharan Africa (discussed above) which are droughts and floods, the types of early warning systems, disaster preparedness programmes, and rehabilitation strategies would look very different from those designed for Asian and Latin American countries and cities. However, the focus on urban informal settlements would suggest that disaster preparedness should elicit a range of levels of response, from forward-looking urban planning for settlement on less disaster prone land, to safer forms of building and services, to building institutional capacity at community and local government level to respond to the needs of communities living in poverty. The recognition that informal settlements are more disaster prone than other settlement types (and that loss of life is usually disproportionately large) gives to cities a method to prioritise interventions. However it does not replace the need for a wider and more holistic set of urban management interventions to improve tenure, services and housing. As has been observed, “*Shelters save lives and livelihoods*” (Red Cross case study: <http://www.ifrc.org/publicat/wdr2001/chapter1.asp#ch1box>).

CONCLUSION

The intention of this paper has been to describe the nature of the problem in sub-Saharan African countries. Given the very localised characteristics of countries, cities, settlements and communities, it is worth stressing again that in the design of any intervention, a strongly situational approach is essential. However, we can say that certain types of settlement predominate in the region the residents of which are

exposed to a typical range of hazards, including famine, flood, fire, the spread of certain types of disease (often water related), and the effects of poor indoor air quality.

The development of an approach, or the documentation of existing examples where approaches have been used, to address informal settlements and sustainable livelihoods in order to reduce vulnerability to disasters would seem to be an essential task. The questions that could be posed would be:

- how should urban agencies intervene in ways which both support livelihoods and allow better environmental performance;
- have typical responses been responsive enough to the complex needs of people vulnerable to changes in the (physical, social and economic) environment?

A fuller knowledge of the variety of types of settlement will only be built through further study and interaction with practitioners and residents. Although a grasp of broad forces (natural and non-natural) which impact on informal settlements should shape a concept of appropriate institutional responses, a view of the local realities of people living in informal settlements should not be abandoned. This is how a resident of an inner city squatter settlement in Pretoria described her neighbourhood:

... you are a shiny city home for helpless
people you are Gold to those who can
work by selling what ever they can
sell from empty bottles to cardboardes
you make us proud by keeping us
alive and being next to our bread
Oh Lord see us through raining days
and keep our burning shacks safe

(Lillian Songwane, Marabastad, 1997).

REFERENCES

Abrams, C. (1964) *Man's Struggle for Shelter in an Urbanising World*. Cambridge, MA: MIT Press.

Angel, S., Archer, R.W., Tanhiphat, S. and Wegelin, E.A. (eds)(1983) *Land for Housing the Poor*. Bangkok: Select Books.

Burgess, R. (1992) 'Helping Some to Help Themselves: Third World housing policies and development strategies' in Math y, K. (ed), *Beyond Self-Help Housing*. London: Mansell. Pages 75-94.

CMCHD, MRC, HST (1996) *The State of Housing, Water and Sanitation in the Greater Metropolitan Area of Cape Town, 1995*. Cape Town: Cape Metropolitan Council Health Department, Medical Research Council of South Africa, Health Systems Trust.

CIA (Central Intelligence Agency)(2000) *The World Factbook 2000*. Washington: CIA. <http://www.cia.gov/cia/publications/factbook/>

Davidson, F. (1984) 'Ismailia: combined upgrading and sites and services projects in Egypt' in Payne, G.K. (ed), *Low-Income Housing in the Developing World: the role of sites and services and settlement upgrading*. Avon: Wiley. Pages 125-148.

DFID (Department for International Development) (2000) *Sustainable Livelihoods Guidance Sheets*. London: DFID. From <http://www.livelihoods.org>

DEAT (Department of Environment Affairs and Tourism)(1999) *State of the Environment: South Africa*. Pretoria: DEAT.

Durand-Lasserve, A. (2000) *Security of Tenure for the Urban Poor in Developing Cities: Home ownership ideology v/s Efficiency and Equity*. Draft paper for Urban 21 conference. National Center for Scientific Research (CNRS) – France, University Denis Diderot - Paris

Fourie, C. (1999) 'Conclusions from a Research Study based on Best Practices Analysis on Access to Land and Security of Tenure' in proceedings of *International Forum on Urban Poverty (IFUP) Third International Conference on Social Integration and Security for the Urban Poor, Towards Cities for All*, Nairobi, 12-14 October 1999.

Hindson, D, and McCarthy, J (eds)(1994) *Here to Stay: informal settlements in KwaZulu-Natal*. Durban: Indicator Press, University of Natal.

IFRCRCS (International Federation of Red Cross and Red Crescent Societies)(2001) *World Disasters Report 2001*. Accessed from <http://www.ifrc.org> September, 2001.

Landman, K. and Lieberman, S. (1999) *Urban Redesign for Public Safety*. Pretoria: CSIR. Report number BOU/C270.

Laquian, A.A. (1983) *Basic Housing: policies for urban sites, services and shelter in developing countries*. Ottawa: International Development Research Centre.

Mabogunje, A.L. (1999) 'Security for the Urban Poor: an African Regional Perspective' in proceedings of *International Forum on Urban Poverty (IFUP) Third International*

Conference on Social Integration and Security for the Urban Poor, Towards Cities for All, Nairobi, 12-14 October 1999.

Martin, R. (1983) 'Upgrading' in Skinner, R.J. and Rodell, M.J. (eds), *People, Poverty and Shelter: problems of self-help housing in the Third World*. London: Methuen. Pages 53-79.

Mathee, A. and Swart, A. (2001) 'A Description of Living Conditions and Health Status in Indoor Informal Settlements in Johannesburg' in *Urban Health and Development Bulletin*. Vol 4, No. 1, March 2001. Pages 14-18.

Mayo, S. K., and Angel, S. (1993) *Enabling Housing Markets to Work. A World Bank Policy Paper*. Washington DC: The World Bank.

Moser, CON (1998) "The Asset Vulnerability Framework: reassessing urban poverty reduction strategies" in *World Development*, 26 (1). Pages 1-19.

Napier, M. (1998) "The Effectiveness of Resident Impacts on Core Housing Living Environments: Personal Experiences of Incremental Growth in Two South African Settlements" *Third World Planning Review*, 20 (4), November 1998. Pages 391-417.

Napier, M. (2000) *Human Settlements and the Environment*. Report prepared for the Department of Environmental Affairs and Tourism, Pretoria, South Africa. Available on: <http://www.environment.gov.za/soer/index.htm>

Napier, M, Du Plessis, C. and Lungu Mulenga, A. (2000a) 'Lessons for The South African Built Environment From A Critical Review Of Contemporary Frameworks On Healthy Housing' in proceedings of the conference on "*Poverty and inequality: the challenge for public health in Southern Africa*". East London, 24-25 February 2000. International Society for Environment and Epidemiology and Epidemiological Society of Southern Africa.

Napier, M, Ballance, A. and Macozoma, D. (2000b) "Predicting the Impact of Home-Based Enterprises on Health and the Biophysical Environment: Observations from Two South African Settlements" in proceedings of the CARDO International Conference on "*Housing, Work and Development: the role of home-based enterprises*", 26-28 April 2000, University of Newcastle upon Tyne.

Pugh, C. (1997) "The Changing Roles of Self-help in Housing and Urban Policies, 1950-1996: Experience in developing countries" in *Third World Planning Review*, 19 (1). Liverpool: Liverpool University Press. Pages 91-109.

Siebolds, P. & Steinberg, F. (1982) 'Tanzania: sites-and -services' in *Habitat International*, Vol. 6 No. 1/2. Oxford: Pergamom Press.

Simone, A. (2001) "Between Ghetto and Globe: remaking urban life in Africa" in Tostensden, A, Tvedten, I. and Vaa, M. (eds), *Associational Life in African Cities: popular responses to the urban crisis*. Stockholm: Nordiska Afrikainstitutet. Pages 46-61.

Tipple, A. G. (2000) *Extending Themselves: user-initiated transformations of government-built housing in developing countries*. Liverpool: Liverpool University Press.

Tostensden, A, Tvedten, I. and Vaa, M. (eds)(2001) *Associational Life in African Cities: popular responses to the urban crisis*. Stockholm: Nordiska Afrikainstitutet.

Turner, J.F.C. (1976) *Housing by People: towards autonomy in building environments*. London: Marion Boyars.

UNCHS (Habitat) (1996) *An Urbanising World: Global Report on Human Settlements 1996*. Oxford: Oxford University Press.

UNCHS (Habitat) (1997) *Global urban observatory: monitoring human settlements with urban indicators*. Nairobi: UNCHS (Habitat).

UNCHS (Habitat) (2001) *Cities in a Globalizing World, Global Report on Human Settlements 2001*. London: Earthscan.

UNDP (United Nations Development Programme) (1997) *Human Development Report 1997*. New York: Oxford University Press.

UNDP (United Nations Development Programme) (2000) *Human Development Report 2000*. **New York: Oxford University Press.**

World Health Organisation (WHO)(1999a) *The World Health Report 1999*. Geneva: WHO.

World Health Organisation (WHO)(1999b) *Sustainable Development and Healthy Environments: Protection of the Human Environment*. Geneva: WHO.

Wratten, E. (1995) "Conceptualizing Urban Poverty" in *Third World Planning Review*, 7 (1). Liverpool: Liverpool University Press. Pages 11-36.

APPENDIX: HUMAN DEVELOPMENT INDICATORS

Table 1: Human development index by region

Source: UNDP 2000

HDI rank	Life expectancy at birth (years) 1998	Adult literacy rate (% age 15 and above) 1998	Combined primary, secondary and tertiary gross enrolment ratio (%) 1998 ^a	GDP per capita (PPP US\$) 1998	Life expectancy index	Education index	GDP index	Human development index (HDI) value 1998
All developing countries	64.7	72.3	60	3 270	0.66	0.68	0.58	0.642
Least developed countries	51.9	50.7	37	1 064	0.45	0.46	0.39	0.435
Arab States	66.0	59.7	60	4 140	0.68	0.60	0.62	0.635
East Asia	70.2	83.4	73	3 564	0.75	0.80	0.60	0.716
East Asia (excluding China)	73.1	96.3	85	13 635	0.80	0.93	0.82	0.849
Latin America and the Caribbean	69.7	87.7	74	6 510	0.74	0.83	0.70	0.758
South Asia	63.0	54.3	52	2 112	0.63	0.54	0.51	0.560
South Asia (excluding India)	63.4	50.5	47	2 207	0.64	0.49	0.52	0.550
South-East Asia and the Pacific	66.3	88.2	66	3 234	0.69	0.81	0.58	0.691
Sub-Saharan Africa	48.9	58.5	42	1 607	0.40	0.53	0.46	0.464
Eastern Europe and the CIS	68.9	98.6	76	6 200	0.73	0.91	0.69	0.777
OECD	76.4	97.4	86	20 357	0.86	0.94	0.89	0.893
High human development	77.0	98.5	90	21 799	0.87	0.96	0.90	0.908
Medium human development	66.9	76.9	65	3 458	0.70	0.73	0.59	0.673
Low human development	50.9	48.8	37	994	0.43	0.45	0.38	0.421
High income	77.8	98.6	92	23 928	0.88	0.96	0.91	0.920
Medium income	68.8	87.8	73	6 241	0.73	0.83	0.69	0.750
Low income	63.4	68.9	56	2 244	0.64	0.65	0.52	0.602
World	66.9	78.8	64	6 526	0.70	0.74	0.70	0.712

Table 2: Comparisons of human development indices

Source: UNDP 2000

HDI rank	Human development index (HDI) 1998	Gender-related development index (GDI)	Gender empowerment measure (GEM)	Human poverty index (HPI) 1998
Sub-Saharan Africa	0.464	0.459	..	..
53 Seychelles	0.786	..	..	..
71 Mauritius	0.761	0.750	0.420	11.6
103 South Africa	0.697	0.689	..	20.2
105 Cape Verde	0.688	0.675	..	22.0
112 Swaziland	0.655	0.646	0.381	27.4
115 Namibia	0.632	0.624	..	26.6
122 Botswana	0.593	0.584	0.521	28.3
123 Gabon	0.592	..	..	..
127 Lesotho	0.569	0.556	..	23.3
129 Ghana	0.556	0.552	..	35.4
130 Zimbabwe	0.555	0.551	..	30.0
131 Equatorial Guinea	0.555	0.542	..	..
132 São Tomé and Príncipe	0.547	..	..	..
134 Cameroon	0.528	0.518	..	38.5
137 Comoros	0.510	0.503	..	33.0
138 Kenya	0.508	0.503	..	29.5
139 Congo	0.507	0.499	..	31.9
141 Madagascar	0.483	0.478	..	..
145 Togo	0.471	0.448	..	37.8
147 Mauritania	0.451	0.441	..	49.7
151 Nigeria	0.439	0.425	..	37.6
152 Congo, Dem. Rep. of the	0.430	0.418	..	..
153 Zambia	0.420	0.413	..	37.9
154 Côte d'Ivoire	0.420	0.401	..	45.8
155 Senegal	0.416	0.405	..	47.9
156 Tanzania, U. Rep. of	0.415	0.410	..	29.2
157 Benin	0.411	0.391	..	48.8
158 Uganda	0.409	0.401	..	39.7
159 Eritrea	0.408	0.394	0.402	..
160 Angola	0.405	..	..	..
161 Gambia	0.396	0.388	..	49.0

HDI rank	Human development index (HDI) 1998	Gender-related development index (GDI)	Gender empowerment measure (GEM)	Human poverty index (HPI) 1998
162 Guinea	0.394	..	..	..
163 Malawi	0.385	0.375	..	41.9
164 Rwanda	0.382	0.377	..	37.5
165 Mali	0.380	0.371	..	51.4
166 Central African Republic	0.371	0.359	..	53.0
167 Chad	0.367	..	..	..
168 Mozambique	0.341	0.326	..	50.7
169 Guinea-Bissau	0.331	0.298	..	50.2
170 Burundi	0.321	..	..	..
171 Ethiopia	0.309	0.297	..	55.3
172 Burkina Faso	0.303	0.290	..	58.4
173 Niger	0.293	0.280	0.119	64.7
174 Sierra Leone	0.252	..	..	..