Sustainable human settlements in the Third World

Katherine V. Gough

Abstract

The continuing failure of most human settlement planning in Third World cities, together with the increasing concern for sustainable development, have resulted in a new focus on sustainable urbanisation. This paper examines the nature of the debate which has arisen on the concept of sustainable urbanisation in the Third World. Two of the main physical aspects of sustainable human settlements, land and building materials, are then focused on. Drawing upon personal research experiences in Ghana and Colombia, it is shown how complex these issues can be and hence the difficulties inherent in any attempt to achieve sustainable human settlement development.

Keywords

Sustainable human settlements, land, building materials, Third World.

Katherine V. Gough: Institute of Geography, University of Copenhagen, Øster Voldgade 10, 1350 Copenhagen K., Denmark. E-mail: kg@geogr.ku.dk.

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At the beginning of this century, only 13 percent of the world's population lived in towns and cities. By 1975 this figure had risen to approximately a third, and by the year 2010 over half of the world's population is expected to live in urban areas. In recent decades, the greater part of global urban growth has been occurring in developing countries where urban populations are growing at 3.5 percent per year as opposed to 1 percent in more developed regions (World Resources Institute, 1996). As Habitat II, the second UN Conference on Human Settlements, brought to the attention of the world in 1996, this rapid growth has resulted in many Third World cities facing physical, social and environmental problems of immense proportions.

Many urban residents in Third World countries build their own dwellings in settlements which are variously referred to as irregular, spontaneous, squatter, unplanned, self-help, marginal, and uncontrolled. Although estimates are difficult to make, these areas probably account for between 30 and 60 percent of the housing stock (Hardoy and Satterthwaite, 1989). The houses are consolidated and built by a process commonly known as self-help. Despite changes in the meaning of self-help, and the lack of a commonly accepted definition, the term is generally used to cover low-income housing where the owners control the building process; they make decisions on planning, building, and maintenance, and are often but not always involved in construction (Gough, 1992).

Self-help housing is far from a new phenomenon; in rural areas of the Third World, it has always been the typical form of dwelling. However, rapid cityward migration and corresponding high rates of urban growth, especially since the 1950s, have made self-help housing a widespread and highly visible phenomenon in urban areas. A range of policies to try to control these informal settlements has been introduced through the decades. In the 1950s and 1960s, the policies aimed to eradicate existing squatter settlements and prevent new ones from growing. The inhabitants were supposed to be re-housed in publicly subsidised or privately built housing located on city peripheries, often in high-rise apartment blocks (Conway, 1985). However, all that these policies achieved was to move the location of the squatter settlements as the poor were unable to afford the state housing built to replace the squatter housing.

In the 1970s, a more poverty oriented approach was adopted, which focused on housing the urban poor through national government programmes of upgrading existing informal settlements and providing sites-and-services

programmes. By the mid-1980s, the limitations of this approach had become evident as the programmes were unable to cover a sufficient number of households and rarely included those who were most in need. After structural adjustment policies, based on neo-liberal theories of development, became dominant from the mid-1980s, the state began to play a diminished role and to act as enabler rather than provider. It was argued that a more free and efficient market would provide the right environment and initiatives for assistance to the poor so that they could help themselves. However, the retracting of state support whilst urban populations have continued to grow has only intensified the housing problem (Burgess et. al., 1997).

The continuing failure of human settlement planning, together with the increasing concern for sustainable development, has resulted in a new focus on sustainable urbanisation. This paper analyses some of the conceptual and practical difficulties associated with sustainable human settlement development in the Third World. The debate which has arisen on the concept of sustainable urbanisation is examined first, before discussing two of the main physical aspects of sustainable human settlements: land and building materials. Drawing on personal research experiences in Ghana and Colombia, it is shown how complex these issues can be and hence the difficulties inherent in any attempt to achieve sustainable human settlement development.

Sustainable urbanisation

The Brundtland Commission's report, which highlighted the necessity of meeting 'the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987: 43), initiated a widespread debate on sustainable development. Sustainable development was subsequently the central theme and message of Agenda 21 which was adopted in Rio de Janeiro in May 1992 at the United Nations Conference on Environment and Development, and has now become the latest shift in development policy focus. Sustainable development means different things to different people and is a multidimensional concept which is about meeting human needs, or maintaining economic growth, or conserving natural capital, or all three (Redclift, 1991; Barrow, 1995).

In the conceptual debate on sustainable development, however, urbanisation has played a peripheral role, which is rather ironic given the centrality of cities to the development process itself. In fact, until recently urbanisation was considered to be a contributor to environmental problems rather than being an aspect of sustainable development. Drakakis-Smith (1995) has pointed to the further irony that despite the environmental movement having largely been an urban movement, only a small proportion of the literature has focused on the question of sustainable urban development. In recent years, however, there has been an increasing interest in sustainable urban development which is reflected in the number of publications now appearing on the issue (Drakakis-Smith, 1995, 1996, 1997; Pugh, 1996; Burgess et al, 1997; Satterthwaite, 1997).

There is little agreement, though, about what constitutes sustainable urban development. A narrow focus on sustainable cities can lead to the idea that cities only draw on natural resources from within their immediate hinterland, a view which is increasingly at odds with the globalisation of the world economy (World Resources Institute, 1996). Drakakis-Smith (1997) has argued that the debate should not be about the sustainable city per se, as the wide ecological footprint of cities and increased globalisation mean that self-containment is not possible. As both urbanisation and development are extremely dynamic processes, urban sustainability is affected by global policies of neo-liberal development. The impact of these global forces varies greatly according to regional, national and local contexts hence the form urbanisation takes also varies widely (Drakakis-Smith, 1997).

Habitat II illustrated the confusion that has arisen as to whether sustainable development is meant to sustain settlements, settlement policies or particular activities within the settlements (Satterthwaite, 1997). It also highlighted the importance of not just focusing on the cities themselves, but being concerned with the inhabitants of the cities. The need to reduce current inequalities in Third World cities can be argued to be as important as worrying about the fate of future generations. The present needs of urban citizens include economic needs (access to adequate employment and unemployment benefits) social, cultural and health needs (adequate shelter and services) and political needs (participation in decision making). To avoid compromising the ability of future generations to meet their own needs, though, it is necessary to both minimise the use or waste of non-renewable resources and ensure the sustainable use of renewable resources (Mitlin and Satterthwaite, 1996).

Human settlements are one of the most visible aspects of the process of urbanisation, and UNCHS has outlined the main challenge for the next two decades as being 'how to manage the development of human settlements in a rapidly urbanising world in such a way as to satisfy the social, economic and environmental goals of sustainable development' (UNCHS, 1996: 417). The central themes of Habitat II were: 'adequate shelter for all' and 'sustainable human settlement development' (Pugh, 1997). As indicated above, there is a wide range of factors which have to considered in trying to achieve these aims. Two of the most important physical resources for human settlements, though, are land and building materials. The difficulties associated with ensuring an adequate and sustainable supply of these factors will be examined below, drawing on examples from my research in Ghana and Colombia.

Land and sustainable human settlements

One of the main determinants of the housing supply and living conditions in a city is the price and availability of land. The costs of poor or no land management are enormous since problems created by the misuse of land are particularly difficult to resolve; once land has been built upon it cannot easily be reclaimed. Although the land issue has been discussed in reviews of urbanisation since the 1970s, the problems of sustainable land use and the need for land reform first became prominent on the urbanisation agenda in the 1980s. Habitat II further highlighted the growing awareness of the necessity of a well functioning land management system. No city can hope to achieve sustainability without the establishment and maintenance of efficient land registration and information systems, and a well functioning land market. Currently, most land-use planning in Third World countries is almost exclusively concerned with limitations and regulations, is unnecessarily complicated, and is greatly under resourced.

The land market in Accra, Ghana will be outlined here as an illustration of how complex the issue of land management can be in human settlements.

Land management is arguably the most pressing, but also the most complex issue in the development of Accra. Most land in Ghana is owned on a communal basis and dealings in land are founded on the principles of customary land ownership and tenure. This system is based on the belief that 'Land belongs to a vast family of which many are dead, few are living and countless numbers are still unborn' (Ollenu, 1962: 4). Land is inalienable and the living must use the land so that the interests of future and unborn generations are not jeopardised. The allodial rights to the land, however, are vested in corporate groups, often the chief and his elders. According to the Ghanaian constitution, land which is customarily held cannot be sold freehold, however, leaseholds may be sold. The indigenous Ga chiefs and elders, and family heads, have the authority to allocate land to members of the indigenous group and sell leasehold interests to strangers. As the boundaries of their land have never been officially recorded, there is often great uncertainty as to their precise location. This has resulted in many land disputes which have created a difficult situation for land administration in Accra.

Many people who acquire plots on which to build houses also become involved in land disputes, either with another purchaser of the same plot or over the boundary of plots which have been incorrectly demarcated. The latter occurs since, although the Town and Country Planning officials are charged with developing land-use plans and plot layouts, development is occurring at a far faster rate than they can produce plans, hence layouts are often prepared by a surveyor employed by a chief. The acquisition of a plot of land can be a long, frustrating and expensive process in Accra. Land sales are managed by the chiefs, but have to be registered at the Lands Commission (the organisation charged with managing public lands, policy formulation and registration of land transactions). The majority of plot acquirers experience intense frustration with the Lands Commission as the system of registration is very long and bureaucratic with massive delays and the continual need to make incentive payments. The expense and bureaucracy involved in registering land transactions results in many land transactions not being recorded.

Furthermore, the government has acquired areas of land formerly controlled by indigenous groups in Accra. As the government has paid very little compensation for the land, this has become a source of conflict between the former landowners and the government. The land sales have also generated discontent within many of the indigenous settlements. The youth are dissatisfied with the way land is being sold and claim that their inheritance is being disposed of without their future interests being taken into account. The gender implications of the land sales are especially clear; the women complain bitterly that although they have traditionally had equal access to land, they are not being

included in decision making on either the sale of the land nor the way in which the proceeds are spent (Gough and Yankson, 1997).

The state land-use planning machinery in Ghana has thus been shown to be weak with most urban land being sold and developed outside of state control, and the land acquisition process is clearly fraught with difficulties. When such uncertainties exist in the land management system, they act as a severe restraint on the construction of both housing and infrastructure. Although, the relationship between people and land clearly differs between societies, depending on their history, culture and legal system (Dale, 1997), it is not uncommon for it to be highly complex. The task of how to ensure that urban land markets serve the needs of urban inhabitants is without doubt one of the most complex, and most urgent, tasks for urban governments to solve if they are to have any chance of achieving sustainable human settlement development (UNCHS, 1996).

Building materials and sustainable human settlements

Building materials generally constitute the single largest input into the construction of housing, accounting for as much as 80 percent of the total value of a simple house (UNCHS, 1996). It is, therefore, vital that appropriate building materials be made available in sufficient quantities and at affordable costs if human settlements are to be sustainable. Traditionally, housing in Third World countries was built using locally available materials primarily earth, bamboo and timber, with roofs of thatch. These materials were collected by the builders themselves. Increasingly, however, traditional building materials are made and/or collected by someone other than the end user. The use of traditional building materials is in decline due to their increasing scarcity, low quality, the higher level of maintenance required, and the higher value and greater attractiveness of contemporary building materials. Consequently, in many Third World countries the materials used in house construction are non-traditional materials such as cement, iron and asbestos cement. A large proportion of building materials are either imported as finished products, or the main inputs and the production technology are imported. The building materials available on the market in most countries in Africa, Asia and Latin America are either prohibitively expensive, in scarce supply or of low quality (UNCHS, 1996).

The appropriate technology school of thought developed during the 1970s as concern grew over the mounting evidence that Third World countries were importing inappropriate technologies. Advanced technologies tend to save on labour through capital-intensive methods, involve large, expensive plants and equipment resulting in a strain on already scarce capital, and demand new and higher levels of skills which change existing social and economic structures. As a result, a body of research focusing on developing new, more appropriate technologies emerged. Action-oriented research has been undertaken by several independent organisations including the Intermediate Technology Development Group (ITDG), the German Appropriate Technology Exchange (GATE) and the Swiss Centre for Appropriate Technology (SKAT). Their research has included investigations into the development of appropriate building materials and construction techniques for use in Third World countries. Manufacturing on a small scale is advocated, sometimes with the end-users actually undertaking the production process.

Appropriate technologies for low-cost building materials production have multiple advantages including reduction in the dependence on imported inputs, opportunities for developing substitute inputs from abundant indigenous resources, potentials for generating new and improved skills among the local work force and reducing the cost of construction. The majority of research on developing appropriate building materials, though, has taken place in research laboratories with little consideration for the practicalities of implementing the recommendations in the field (Gough, 1996a). Much of this research can be criticised for naively failing to take into account the politics of decision-making and the nature of economic modes of production. Appropriate technology, in being designed to benefit the poor, penalises the rich elite who have the economic and political power to prevent its adoption.

The difficulties which can be encountered when trying to introduce appropriate technology into the market are illustrated by the following case. In the early 1980s, a non-profit organisation, Fundemos, based in the intermediate sized city of Manizales, Colombia began to manufacture fibre-reinforced cement roofing sheets. The manufacturing process required the mixing of the raw materials (cement, sand and natural fibres) which were then vibrated on a metal table and moulded over a corrugated template. The sheets were successfully used in a self-help housing project organised by Fundemos who decided to continue to manu-

facture the sheets for sale on the open market. By 1986, though, production of the roofing sheets had halted altogether due to poor sales. The lack of sales was partly due to the marketing policy of Eternit (the multinational company which produced asbestos cement roofing sheets) who threatened to refuse to supply any building materials merchant who stocked the fibre-reinforced cement. As the sale of asbestos cement products is an important source of income for many merchants, none of them would agree to sell the materials produced by Fundemos. Fundemos also encountered problems when trying themselves to sell the roofing sheets as the low-income households were unwilling to buy a product which was unfamiliar to them (Gough, 1996a). This example highlights the problems faced when trying to introduce a new appropriate technology which is in direct competition with a commodity produced by a firm with monopoly control of the market. Large-scale enterprises have an interest in encouraging the dissolution of small-scale producers who set up in competition. It also illustrates the conservatism of self-help builders when faced with a new product.

Other ways of trying to reduce the costs of building materials for housing include bulk purchase of building materials by communities of self-help builders, and the production of building materials by the self-help builders themselves. Many such projects have encountered a range of problems which stem partly from the difficulties of coordinating a heterogeneous group of builders who have different capacities and resources available to them. The success of construction by self-help depends on its informal nature. Attempts to formalise the process, although based on rational economic motives, often fail because they are not able to be flexible enough. Projects in which people produce their own materials encounter difficulties because the workload of an already overworked population is increased, and the rate of construction of the houses is slowed down. Another reason for the failure of many projects is that attempts to cut through the established distribution and retail networks are strongly resisted by the various interest groups affected.

A reliable supply of affordable building materials is essential if human settlements are to be sustainable, however, as has been shown here, this is far from a simple task. UNCHS (1996) has detailed some of the more promising developments in the search for new technologies and materials which include: small-scale production of cement, lime and alternative binding materials; innovations in soil construction; fibre-concrete roofing; and use of industrial and agricultural wastes in building materials. However, as has been illustrated here, any projects which aim to intervene in the production or distribution of building materials need to take into account both the nature of informal construction and the operation of the building materials market, if they are to have any chance of success (Gough, 1996a; Gough, 1996b).

Conclusion

Although achieving sustainable human settlement development is widely agreed to be a desirable goal, there are very real obstacles to overcome in the process. This paper has illustrated some of the conceptual and practical problems which may be encountered. Sustainable development aims to ensure that development does not damage the planet's life systems or in other ways jeopardise the interests of future generations. The concept is both broad and vague, though, leading to a wide range of interpretations. Urbanisation was left out of the sustainable development debate until recently, but in an increasingly urbanised world, where it is projected that within the next decade more than half of the world's population will live in urban areas, it has become the subject of much discussion.

UNCHS (1996) has outlined the main challenge for the next decade as being how to manage the development of human settlements in such a way as to satisfy the social, economic and environmental goals of sustainable development. There are, therefore, many aspects of sustainable human settlement development which have to be considered. This paper has focussed on the physical factors of land and building materials. A well functioning land market and land management system, and a reliable supply of affordable building materials, are both vital aspects of sustainable human settlements. Drawing upon case material from very different parts of the world, it has been shown how land and building materials are both highly complex and problematic aspects of the urbanisation process. Despite all the rhetoric on sustainable human settlements, unless these fundamental aspects are tackled there will be no hope of achieving this highly desirable aim.

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