# Human Settlement and the Environment: Environmental Policy Considerations

*Camillus J. Sawio and Cosmas H. Sokoni*

*Abstract:* This chapter highlights the importance of human settlements and the relationships that exist between these and the environment. Efforts are made to decipher environmental policy considerations in the context of "sustainable human settlements development" arguing that informal sector activities are part and parcel of the economic fabric of rural and urban settlements with benefits ranging from employment, income generation, satisfaction of basic needs of food, shelter, recreation, sense of freedom and resource conservation options to the public and individuals. Negative environmental impacts in human settlements occur in various dimensions, but most result from the weak capacities of "municipal systems," as well as central and local government systems to manage rapidly changing situations. The paper concludes by suggesting that environmental policies should be based on a proper understanding of the diverse "environment-human settlement-interactions" and a recognition of people-centred strategies towards "social-cultural-economic" survival.

## Introduction

Human attempts to bring about socio-economic development have not always been friendly to the environment. Humans have become effective agents of change in the environmental resources some of which could be detrimental to the very goals of development. Man's interaction with the environment affects microclimates. Not only are new kinds of micro-climates created but also micro-climatological factors are modified. Some of the disturbances on the microclimate may take a long time to stabilise. However, the global family is becoming more and more concerned with past and on-going man-environment interactions that are unquestionably destructive and unsustainable. Such concerns were raised by the World Commission on Environment and Development (WCED, 1987) and more recently by the Earth's Summit in Rio de Janeiro in 1992. The conclusions of the summit are contained in Agenda

21 which draws a program of action for global partnership to save the globe from environmental degradation.

Tanzania, has responded to this need by taking measures towards the formulation of an environmental policy for sustainable development. The concept of "sustainable development" has a complex pedigree. It was introduced by the World Commission on Environment and Development (WCED, 1987) and it has since become a catchphrase and almost a "cliche". Despite its many interpretations, an International Union for the Conservation of Nature (IUCN) Conference on Conservation and Development held in Ottawa Canada in 1986 concluded that: sustainable development seeks... to respond to five broad requirements: (1) integration of conservation and development, (2) satisfaction of basic human needs, (3) achievements of equity and social justice, (4) provision of social self-determination and cultural diversity, and (5) maintenance of ecological integrity. (Jacob and Munroe, 1987).

Undeniably, human activities vary in the ways and extent to which they influence the environmental resource base. Whatever policy is drawn up, there is a need for such a policy to be realistic and sector/activity specific. A policy aimed at sustainable development must, *inter alia,* reflect peoples's aspirations. It must be responsive to their problems, needs, culture, education and their traditional knowledge that has enabled them to exploit environmental resources and survive in diverse situations. Policy aspects should not be narrow or simply local. Global views and contexts need to be taken into account as well.

## A Global Overview

It is increasingly being recognised that the quality of life for humans depends critically on the physical, social and economic conditions of villages, towns and cities in which they live. Today, some 2.5 billion people live in urban settlements. This number is expected to increase rapidly in the years ahead with over 3 billion by the year 2025. The environmental and development repercussions of this rapid and often uncontrolled urbanization process are profound" (UN, 1992:9).

Because the global community is concerned about the possible outcome of environmental degradation, the promotion of sustainable human settlement development is the grand objective of Agenda 21. The specific policies *vis-a-vis* the informal sector and the environment in Tanzania is:

> "to improve the social, economic and environmental quality of human settlements and the living and working environments of all people, in particular the urban and rural poor. Such improvements should be based on technical cooperation activities, partnerships among the public, private and community sectors and participation in the decision-making process by community and special interest groups such as women, indigenous people, the elderly and the disabled." (UN, Earth Summit, 1992, Agenda 21:52).

## The Focus

The paper fist sets the scope of the discussion by outlining the background to human settlement and urbanization in Tanzania. Second, it attempts to elaborate

the concept of human settlements and then discusses the importance of human settlements and what they can provide in general, including the informal sector (IFS). Thirdly, the context of sustainable development and planning in Tanzania is briefly discussed. Fifth, the paper focuses on the relationship between human settlements and the environment and describes the interaction of the informal sector and the environment. Finally a discussion is made of the problems and constraints of settlements, especially the informal sector, and an attempt is made to draw recommendations that may be relevant for National Environmental Policy formulation.

While a number of arguments are advanced in the subsequent sections, this paper suggests that environmental policy towards the IFS and human settlements should be geared towards the provision of appropriate infrastructure and services which the informal sector lacks. The IFS has been neglected by the government in the past and the majority of these actors are low-income people, often powerless, marginalized, and exploited in various ways.

## Background to Tanzania's Settlements, the Informal Sector and the Environment

Since the 1970's Sokoni (1991-11) argues, the informal sector has been considered an effective instrument in development, for example in the employment oriented strategy (ILO, 1972) and "Basic Needs Strategy" (ILO, 1982). In Tanzania, the 1991 National Informal Sector Survey (URT, 1991) attempted to measure employment in the IFS, and results showed that nearly half of the IFS activity is a secondary activity to agriculture or wage jobs in terms of time spent (Madini, 1991:1-5). The IFS is important to the local economy in employment terms. Results from the National Informal Sector Survey affirm the fact that according to 1990/1991 Labour Force Surveys (LFS) the IFS is the main activity for about one million people and is often a more important source of household and personal income than the main activity (Ibid.).

The IFS exists in rural and urban areas (Table 1.0). Data from the national informal sector survey show that about 2.4 million people are engaged in IFS activities. Of these about 60 percent are found in rural areas and the rest in urban areas.

**Table10. 1:** ***The Size of Tanzania's Informal Sector (Total I.S. Employment by Sex and Geographical Area)***

| Sex | Dar es Salaam | Other Urban | Rural | Total |
|---|---|---|---|---|
| Maale | 190,971 | 354,526 | 985,597 | 1,531,094 |
| Female | 124,587 | 279,619 | 433,680 | 838,286 |
| Total | 315,958 | 634,145 | 1,419,277 | 2,369,380 |

*Source:* URT, National Informal Sector Survey, 1991, Table 2.1.1,p.1-5.

Again according to the 1990/91 Labour Force Survey, 10,900,000 people were employed in all sectors nationwide, with 9.2 million residing in rural areas and 1.7 million in urban areas. Of these, about 5.5 million were males, and 5.4 million were females. Comparing the LBS figures and the IFS survey figures, the proportion of informal sector employment at some time of the year to total employment amounted to 22 percent nationwide, 15 percent in urban areas (Ibid). This must be seen in the context of the urbanization trend in the country.

**Urbanization in Tanzania**

The bulk of the population will remain rural-based for a long time. But rapid urbanization is taking place. Indeed, urban patterns in mainland Tanzania are a product of the colonial period and its legacy (Stren, 1975). Coastal towns grew on account of Arab and Portuguese influence prior to German and British colonization. Urban growth began to have a momentum in the 1940s. In 1948, for example, only four towns had a population nearing 10,000 each. But by 1957, there were 11 by 1967, there were 14 such towns. Between 1948 and 1957 the annual urban growth rate was 7.1% and rural population increased

**Table10. 2:** *Tanzania Urban Population Growth 1967-1988*

| Town | 1967 | 1978 | 1988 | % Growth 1978-88 |
|---|---|---|---|---|
| Dar es Salaam | 272,821 | 757,346 | 1,360,850 | 63 |
| Mwanza | 34,861 | 110,611 | 182,189 | 65 |
| Zanzibar | 67,819 | 110,669 | 157,634 | 42 |
| Tanga | 61,058 | 103,403 | 138,274 | 34 |
| Mbeya | 12,479 | 76,606 | 135,614 | 77 |
| Morogoro | 25,262 | 621,890 | 117,760 | 90 |
| Arusha | 32,452 | 55,281 | 117,622 | 113 |
| Moshi | 26,864 | 52,223 | 96,838 | 85 |
| Tabora | 21,012 | 67,392 | 95,506 | 39 |
| Dodoma | 23,559 | 45,703 | 88,473 | 94 |
| Iringa | 21,746 | 57,182 | 84,860 | 48 |
| Kigoma | 21,369 | 50,044 | 77,055 | 54 |
| Mtwara | 20,413 | 48,510 | 76,632 | 58 |
| Musoma | 15,412 | 32,658 | 63,652 | 95 |
| Shinyanga | 5,101 | 21,703 | 63,471 | 192 |
| Songea | 5,380 | 17,954 | 54,830 | 205 |
| Sumbawanga | n.a. | 28,586 | 47,878 | 67 |
| Lindi | 13,352 | 27,308 | 41,487 | 52 |
| Singida | 9,459 | 29,252 | 39,598 | 35 |
| Bukoba | 8,141 | 20,430 | 28,702 | 40 |

*Source:* United Republic of Tanzania, 1967, 1978 & 1988 Censuses; also cited by Davis Mwamfupe, 1994:51.

by 1.5%. The growth rates between 1957 and 1967 were 6.4% and 2.9% for urban and rural populations respectively (Berry, 1978). Urban areas were growing almost three times faster than rural areas.

**Human Settlements**

Human settlement is a broad concept encompassing various levels of settlement sizes among which include: hamlets, villages, towns, cities, megalopolises, and conurbations. Human settlements can be distinguished form each other on the basis of other variables such as function, shape, location, internal structure, genesis, growth and decay symptoms. There are temporary as well as permanent settlements. In this paper, we discuss rural and urban settlements.

**What Human Settlements Provide**

A human settlement provides not only a *residence* (housing) but also a *work place* (for agriculture, industry, office space, retail space, etc.) and *neighourhood or village*. Consideration of the relationship between human settlements and the environment should reflect all the three aspects. In addition, policy efforts to integrate human settlements and development must pay due attention to issues of environmental "sustainability". The rationale for this is based on the fact that:

> the world should be viewed as a single human settlement system, because human settlements provide the living and working environment for almost every body in the world... Every settlement has a role to play in the functioning of the system and a contribution to make towards sustainable economic, social and physical development "(UNCHS, 1990:1).

According to UNCHS (Habitat):

> human settlements can provide the framework for the conservation and re-cycling of non-renewable resources, the introduction of technologies using renewable resources and the management of resource-use so that life-support systems are preserved (ibid.).

*Human Settlements in the Context of Sustainable Development*

In the context of sustainable development, attention should be paid, first, to the economic and social roles of settlements. Human settlements have a central place in economic and social policy-making and in management interactions between the built and natural environment. (UNCHS, 1990:3).

The interactions are realised at national and regional (local) settlement systems - cities, small centres and rural settlements and their inter-connections. These provide, therefore, the spatial context for almost all investment-decisions (UNCHS, 1990, ibid.)

In Tanzania, settlement systems play a key role in agricultural development, "since it is only through the urban system and its links with rural settlements that farming can be strengthened with agricultural extension

services, with production inputs, with credit support and with storage, marketing and processing facilities. Finally, settlement systems have a central place in social provision.: it is through the settlement system that both rural and urban populations obtain access to health care, education, communications facilities and emergency life-saving services." (UNCHS, 1990:3).

At this juncture, it is important to emphasize that the formulation of settlement and environmental policies in any country must take into account the crucial objective of achieving sustainable development which entails not only establishing good economic, social and political goals, but also making optimum use of the global natural-resource base and life-support systems (Ibid.).

**Human Settlements Planning in Tanzania**

In the planning of human settlements, most activities have tended to capitalize on the concept of "master plans" for urban areas, and village plans for rural areas. A related exercise is that of producing regional physical plans for the entire country. This is an ambitious and comprehensive task. Yet it is least concerned with peoples' aspirations and basic needs.

Over the years, settlement planning in Tanzania has involved a number of practices including preparation of urban master plans, mainly by foreign firms; preparing neighbourhood plans and also site and services schemes. In addition, rural settlement planning has been taking place through such activities as village surveys, determination of village viability through resource mapping and inventorying, and the setting of village boundaries. The exercise of establishing *Ujamaa* villages attempted to bring about some sort of rural/village settlement planning, but it left much to be desired.

Experts in the field have observed that one of the weakest elements of settlement management in Tanzania is forward planning. As a result "what passes for planning in most local governments is a rudimentary form of land-use zoning, usually unrelated to any socio-economic framework, divorced from infrastructure-engineering considerations (without which land-use proposals are meaningless) and lacking any implementation mechanisms for meeting its goals. As a result planning has beens largely dismissed as a futile exercise, irrelevant to the practice of settlement management. "(UNCHS, 1990:11).

At this point, prior to outlining general and specific recommendations for policy consideration, it is sufficient to mention that for settlement plans to be viable and sustainable, the planning process need to be characterised by:

(i) decentralization;
(ii) a participatory mechanism to involve the people fully;
iii) articulation of issues to be responsive to the satisfaction of peoples' basic needs;
(iv) rational application of resources, coupled with a resource accounting system;
(v) a realistic assessment of issues, problems, implementation capacity and availability of resources; and
(vi) creativity and pragmatism.

When such elements are included in plans, people's latent initiatives (manifested mostly in the informal sector) would be tapped and a balanced framework for sustainable housing, population distribution, and resource utilization, could be established. This will bring a meaningful interactions between people and the environment.

## Interaction Between Residence, Workplace and Neighbourhood

Land development for housing has effects on the environment and these are different from those arising from development of land for workplaces. Yet, residences and workplaces do not exist in isolation; rather they interact with each other to form neighbourhoods. This applies to both rural and urban areas. We should note that often there is no clear-cut boundary between these two aspects and they are usually interconnected. For example, a residence can often be used as a workplace.

Human settlements have been an important part of human development. "The quality of life for humans depends critically on the physical, social and economic conditions of the villages, towns, and cities in which they live" (United Nations, 1991:9). There has been a greater concern and attention paid to urban settlements than rural areas. Cities are considered as major catalysts of economic growth. Yet, the growth of towns and cities has been associated with increasing pressure on and/or deterioration of the surrounding physical environment. Rapid growth of cities, particularly in the developing countries, is increasingly being associated with destructive effects on the physical environment and resource base needed for development. Crowding, congestion, informal or squatter housing, occupation of hazardous lands in towns and cities, use of marginal lands in rural areas, inadequate supply of water and sanitary services, improper disposal of domestic/household wates, commercial and industrial liquid and solid wastes lead to land, air, surface as well as underground water pollution - all of which lead to serious health hazards.

Although rapid urban growth and expansion are blamed for increasing environmental degradation, they are by no means the only factors involved. Inappropriate economic policies; inappropriate physical planning policies; inadequate investment in pollution monitoring and control, deficient regulatory and institutional frameworks, weak management capacities and the use of obsolete laws and policy guidelines play a significant role in this degradation. Central as well as local (city/town) governments have been unable to provide satisfactory services for food supply, potable water, sanitation, solid waste disposal, transport, or energy for cooking and heating in human settlements. But people, often through self-help means, supply themselves with these basic services even at the risk of creating environmental hazards.

The relationship between a rural settlement and a residence, a workplace and a neighbourhood has been approached rather superficially. A greater concern among social scientists, politicians economist, sociologist, etc has been on the influence that agricultural systems have on the environment. However, settlement development such as villagization, according to the Tanzanian experience, has had serious disturbances on the environment through

increased utilization of land and vegetation resources for the production of food and cash crops and shelter. (Kikula 1996 - forthcoming).

**The Informal Sector: The Concept**

The concept of *Informal Sector* is widely used despite the numerous definitional problems. The term has sometimes been used to refer to sources of income, types of employment, entrepreneurship, enterprises, services such as informal housing, petty trading, hawking and so on. It is often difficult to draw a boundary between IFS and the formal sector due to numerous overlaps between them. The sector is not limited to any one type of activity; rather, it covers a wide range of heterogenous activities (Table 3.0).

Also worth noting is the fact that these activities and others are undertaken by a heterogenous set of actors. In almost every "formal" economic sector, there is a corresponding "informal sub-sector". What is common to all these is that they are often not legally established and are normally not subject to state regulations.

***An Urban Bias***

The concept of IFS has, to-date been applied to activities undertaken in urban settlements. In rural areas, the use of the term is more restrictive. For example, whereas agricultural activities in urban areas are considered to be "informal" (URT, 1991), these are common in rural areas. Yet talk of informal credit systems in rural areas (e.g. a rural credit union) in contrast to formal credit systems of urban based financial institutions in the literature, small-scale rural manufacturing establishments (carpentry, brick-laying, sculpturing, pottery, basket making, etc.) have been labelled "informal" in contrast to formal, large-scale industrial enterprises.

According to a survey of this sector in Tanzania, (URT, 1991) small-scale manufacturing contributes to a higher share of informal employment. The informal sector has emerged in an attempt to compensate for deficiencies in the formal economic system. Since the majority of rural settlements in Tanzania are not yet planned they are rarely classified into formal and informal.

**Human Settlements and the Environment:**

**Attitudes vs the Informal Sector**

Attitudes towards the IFS have changed remarkably from persecution, repression and harassment before the 1970s to toleration and support in the late 1970s and in the 1980s. Informal provision of shelter or place of work were seen as an abuse of the environment. Related to this attitude, clearing of slums/informal housing or squatter settlements and other informal activities was seen as a solution to environmental problems associated with them. It is now commonly accepted that demolition of squatter settlements, for example, reduces the housing stock while alternative and better housing to meet the demand of rapidly growing urban centres is difficult to provide. Despite efforts at "squatter up-grading" through such programs as sites and services, a large

**Table10. 3 :** *Tanzania Mainland Informal Sector Enterprises by Detailed Industrial Categories by Geographic Area.*

| INDUSTRY | GEOGRAPHICAL AREA | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | DAR ES SALAAM | | OTHER URBAN | | RURAL | | TOTAL | |
| | No. | % | No. | % | No. | % | No. | % |
| AGRICULTURE & FISHING | 10228 | 5 | 47545 | 11 | 0 | 0 | 5777 | 3 |
| Agric. & L'stock urban | 1582 | 1 | 5120 | 1 | 77634 | 7 | 84336 | 5 |
| Fishing | 0 | 0 | 13187 | 3 | 3952 | 0 | 17139 | 1 |
| MINING & QUARRYING | | | | | | | | |
| MANUFACTURING | | 2 | | | | | | |
| Food Processing | 4747 | 5 | 3791 | 1 | 27369 | 2 | 35907 | 2 |
| Cloth making | 11441 | 4 | 20501 | 5 | 50591 | 4 | 82533 | 5 |
| Wood products | 7322 | 1 | 13519 | 3 | 85293 | 7 | 1067134 | 6 |
| Metal products | 1446 | | 4563 | 1 | 17258 | 2 | 23267 | 1 |
| CONSTRUCTION | | | | | | | | |
| House building | 2003 | 1 | 811 | 0 | 7400 | 1 | 10214 | 1 |
| Mansonry | 5430 | 3 | 15030 | 3 | 70194 | 6 | 96654 | 5 |
| TRADE/REST./HOTELS | | | | | | | | |
| Duka General | 14583 | 7 | 23507 | 5 | 4761425 | 4 | 85704 | 5 |
| Cooked food sale | 36136 | 17 | 33143 | 8 | 5442731 | 2 | 94823 | 5 |
| Fruit/Veg. Sale | 16458 | 8 | 21070 | 5 | 5 | 2 | 64843 | 4 |
| Fish & meat sale | 11286 | 5 | 23073 | 5 | 75928 | 7 | 110287 | 6 |
| Local beer sale | 6670 | 3 | 65196 | 15 | 205176 | 18 | 277042 | 15 |
| Rest/food stalls | 20070 | 10 | 22153 | 5 | 37211 | 3 | 79434 | 4 |
| TRANSPORT | | | | | | | | |
| Bus & Taxi | 1120 | 1 | 1632 | 0 | 3709 | 0 | 6461 | 0 |
| Other transport | 1194 | 1 | 3925 | 1 | 37799 | 3 | 42918 | 2 |
| COMMUNITY & PERSONAL SERVICES | | | | | | | | |
| Vehicle repaire | 2908 | 2 | 3892 | 1 | 1947 | 0 | 8747 | 1 |
| Trad. Medicine | 2254 | 1 | 4923 | 1 | 17126 | 2 | 24303 | 1 |

*Source:* URT, National Informal Sector Survey, 1991, Table 4.2,p.1-23

number of people still live in houses not well provided for with infrastructure and basic services.

In terms of policy initiatives, there is much to be done for the IFS. Often the sector has been neglected in planning.

Tolerance of the sector has meant, among other things, lack of control and lack of enforcement of regulations that guide building and arrangement of human settlements (houses, recreational facilities, shopping areas, small industrial units, etc) and the provision of infrastructure and services needed. Omuta (1986) has argued and stressed that the real cause of the apparent degradation of the environmnet of our cities is the grossly inadequate provision for the urban IFS in urban development and management programmes. This could be said to be the most acute problem of the interaction between the IFS and the environment.

In the following sections we consider the interaction of some sub-sectors of the IFS and the environment. These include: housing, manufacturing, distribution systems (retailing, agriculture, transport) and other services.

**Housing and Environmental Degradation**

The impact of a settlement on the environment can be understood in terms of the various components of the settlement: the built-up environment, transport systems, and residential, commercial, industrial and institutional activities. For instance, the built-up environment of a particular settlement transforms its natural environment by precluding infiltration of precipitation. Permeability decreases and the magnitude and frequency of flood flows increases. This adverse environmental effect of poor urban storm water run-off is compounded by inadequate management of sewerage systems, liquid and solid wastes.

Informal housing is characterized by spontaneous development, unplanned or haphazard arrangement, lack of basic infrastructure and services. The population that lives in such settlements is susceptible to various vector and infectious diseases such as tuberculosis, influenza, meningitis, malaria, diarrhoea and other intestinal diseases and many other health hazards (see Table 4.0).

Health hazards in rural and urban settlements are on the increase due to lack of proper sewerage systems. Rivers, streams, canals, gullies,ditches and unused open spaces are the places where most human excrement and household waste water ends up, untreated. This is a serious health and sanitation problem. Sanitation generally covers excreta disposal, drainage maintenance, sullage disposal, industrial liquid and solid waste disposal, household waste disposal, pollution (air, water and land) and sold waste management.

As polluted water drains into larger water bodies, it leads to destruction of coastal ecosystems. Discharge of effluents into valleys pollutes the aquatic habitat. Fish and other ocean/lake or water-related foods can easily be contaminated leading, in turn, to health hazards. In most human settlements in developing countries, surface and ground water is polluted mainly from domestic sewage disposed by poor quality pit-latrines and from non-operating septic tanks and soak pits.

**Table10. 4:** ***Household Environmental Features: Health Hazards and Compounding Variables***

| Household Feature | Health Hazard | Confounding Variables |
|---|---|---|
| 1. Water Sanitation<br>Water quantity | Trachoma; skin infections; gastroenteric diseases. | Water cost; hygiene behaviour; individual water supply; |
| Water quality | Typhoid; cholera; gastroenteric diseases including intestinal parasites. | Water storage; hygiene behaviour; access to maternal care (for children; socio-economic status; use of health services). |
| Excreta disposal | Gastroenteric diseases incl. intestinal parasites, filariasis.. | |
| 2. Air Pollution<br>Ventilation, House dust, Building materials, Heating materials, Site of home | Acute respiratory infection; chronic respiratory diseases; respiratory malignancies. | Crowding; smoking; socio-economic status; use of health services occupation; cooking, and health practice. |
| 3. Food Contamination<br>Preparation<br>Storage facilities | Malnutrition; intestinal | Source of Food: Seasonality; socio-economic status; debt status; age of respondent; weaning practices; breast-feeding; workpattern; consumption patterns; storage patterns. |
| 4. Solid Wastes<br>Site of home<br>Regularity of disposal; type of wastes | Intestinal parasites; tetanus; malaria; burns; leishmaniasis; hookworm; schistosomiasis; accidents; poisonings | Seasonality; socio-economic status; migration status; child-care facilities; occupation; cultural practices. |
| 5. Pests and Pesticides<br>Building materials; Site of home; Food storage; Water storage; waste water disposal; sanitation. | Chagas diseases; malaria; schistosomiasis; filariasis; trypanosomiasis. | Seasonality; occupation; behavious; use of domestic animals; use of pesticides & health services. |

*Source:* Adapted from: Stephens C., Harpham, Y., Bradley, D. and Cairncross, S. (1990). *Health Impacts of Environmental Problems of Urban Areas in Developing Countries* (An analysis of the Epidemiological Evidence for the WHO Expert Committee on Urbanization) Geneva, WHO, 1990.

Solid waste accumulates in streets, open spaces, between houses and on vacant land. This contributes to health hazards. Neighbourhoods where children play are affected and the population as a whole is negatively impacted. Lack of good quality and adequate water compels residents to buy water at high prices and, more often than not, are forced to use contaminated water. The higher population density of these settlements means that residents have a higher risk of contact with the excreta. Refuse accumulations on waste lands and streets attracts disease vectors and pests. The impacts on the environment include surface and ground water contamination, food contamination as well as breeding of insect pests. The low capacity of garbage collection and inefficiencies in managing and implementing public waste collection and disposal efforts often lead to clogging of drainage systems (channels) by silt garbage overflow, leading to flooding. This is yet another hazard associated with informal housing. High density settlements also have a higher risk of fire hazards.

Construction of septic tanks, soap pits, pit latrines and open sewers, can increase soil moisture as well as some contamination to soil. Poorly constructed pit latrines are a common feature of informal housing. For example, some studies claim that 75% of the households in Dar es Salaam rely on pit latrines leading to extensive ground water contamination.

Informal land development for housing has other repercussions; but particularly on the increase are drainage problems. Removal of vegetation reduces the capacity of land to retain water and to resist erosion. Haphazard building of all kinds of petty trade structures along roadsides, the carrying out of such informal economic activities such as brick-making, firewood and charcoal selling on roadside and open spaces or on land left open under utility rights-of-way such as power-lines can cause considerable environmental problems. If uncontrolled, these developments result in congestion, reduction of drainage space, constraints to easy repair of utility lines when needed. Serious road flooding may occur where it never existed before the construction of such structures. In addition, when buffer land along roads and utility lines are misused, diversion of traffic during major road repairs or expansion is curtailed. It is difficult to establish a drainage system in a squatter area due to unplanned layouts. Quite often uncoordinated drainage improvement efforts by individuals are not effective because they lack integration.

Rugumamu (1992) has observed, with concern, the development of residential land uses into hazard land (steep slopes, valleys, swampy areas, marshes and salt flats) and other lands subject to flooding by both the urban poor and affluent population. Not infrequently, woodlands and marshlands are being converted into urban uses. This process compounds environmental degradation through its encouragement of soil erosion, sedimentation, waterlogging (flooding), devegetation, and pollution.

As can be deduced thus far, informal housing is associated with the urban poor. In some cases, houses found in so-called "squatter areas" do not mean that the owners are poor because their values could be high and their design and construction could only be done by people in the high income brackets. Not all informal housing is owned by the urban poor. That

notwithstanding, the majority of the urban poor who need shelter construct poor quality houses or inhabit the same which are located in hazard prone areas for lack of access to better land as well as financial resources. However, informality and settlement development on hazard land is not only a question of being poor. High class houses have been built in "erosion prone "steep sloped hills around Makongo in Dar es Salaam (Rugumamu, 1992). House construction on fragile areas interferes with the hydrological cycle, resulting in increased surface run-off and accelerated soil erosion especially on steep slopes. The following section discusses work places and the environment.

## Work Places and the Environment

### *Manufacturing and Related Services*

Informal manufacturing enteprises are widespread in human settlements. Their overall environmental impacts are no doubt minimal compared to large-scale industrial establishments. However, a significant number of people are in contact with the health and environmental hazards they pose in their day to day activities. Most of them lack proper premises. They rely on make-shift structures erected in residential, recreational and commercial areas. The make-shift structures along Mpole Road in Temeke, Dar es Salaam, for example, accommodate about 88 informal manufacturers making: wick lamps, charcoal stoves, water pails, dust-bins, poultry feeders, rat catchers, food storage bins and insecticide pumps (Daily News, April 4, 1990, p.40). Because they are unplanned they have very little or no access to infrastructure and services.

Many of the enterprises operate from open spaces, under a tree or at places supposed to be play grounds or parks. As noted earlier, some enterprises are located in open spaces delineated for utility rights-of way. They are often linked with noise pollution and disposal of solid wastes (Amasi, 1990). Concentration of toxic chemicals, oil and dust on open yards from garages and workshops located in rural and urban residential areas can have serious implications to the environment.

Informal activities interact not only with the broad natural environment but also, at micro-level, with the indoor or workplace from noise and pollutants which can have serious effects on people's health. In Tanzania, informal activities are commonly located within the dwellings of the operators. Thus, for example, 31 percent of enterprises operate from residences (URT, 1991:123). This merging of residence and workplace has some repercussions on household's residential environment. Overcrowding, pollution, fire dangers, theft, etc are common. Use of homes as workplaces or workshops to produce goods for sale or as store for goods sold on the street is common. Turning parts of houses into shops, bars, cafes, tailor marts or some other business is normal and contributes significantly to the well-being or survival of many a low-income urban dwellers. However, these activities need to be controlled so as to avoid multiplication of environmental hazards. The argument is not to stop them altogether because there is no guarantee that the state or local government can provide the services such establishments offer to households and communities. Reasonable control is needed, however, in order to reduce risks.

For example, use of toxic and flammable chemicals, gases, petroleum products and others should be restricted.

There is a tendency to locate informal garages in residential areas and often along or near streams. This may be due to the fact that these lands are perceived to be marginal and, therefore, occupiers (invaders) assume that there would be no danger of evacuation. It may well be that such invasions are prompted by the fact they are near to streams as sources of water and thus easy to dispose the waste into these streams.

Ample evidence exists to show that structures erected to accommodate informal manufacturing activities also degrade the urban environment through their poor aesthetic appearance. This reduces land and property values over time. A typical example is the erection of make-shift structures under open power-lines and/or telephone rights-of-way. These look ugly, with wires criss-crossing in all directions.

***Informal Retailing (Petty Trading): Hawking, Roadside Trading***

Like many other informal activities petty trade is filling a need left by inadequacies in the conventional supply system. In Tanzania, there is a by-law that stipulates how petty trading, including hawking and street trading, should be carried out. The focus has been on possession of licences as a control mechanism. In Dar es Salaam, for example, the by-law enacted under Act, 1982, No.8, Section 80: The Dar es Salaam city Council (Hawking and Street Trading) Amendment by-Laws, 1989, (Government Notice No.305 of August 9, 1989, Section 3 (1) and 10 (1) states:

> No person shall trade any good, foodstuffs or services within any part of the City unless he/she is in lawful possession of a valid business licences issued by the Council authorizing him/her to do so (Sec.3 (1)).
>
> No stall for display or sale of any goods, foodstuffs, or for carrying out service shall be erected in any street by any person unless he/she is in lawful possession of a valid trading licence issued by the council (erection of stalls).

Market places are known for generation of litter and are often congested. Also, the structures erected to accommodate market activities are often haphazard and aesthetically poor. The problem of litter generation is compounded by the inability of the government to provide for waste collection services.

Street trading, which includes a wide array of items such as selling fruits, vegetables, clothes, furniture, chicken, eggs, dairy milk, etc. is blamed for congestion. Crowded environments conflict with vehicular traffic. Also irksome is blockage of walkways for pedestrian traffic and possibly non-motorized traffic (bicycles, cart pushing).

Environmental degradation associated with informal street trading is more than just the disturbance of the components of the physical environment. In question is the beauty of the erected structure. These structures for display and sale of their goods are an eyesore because of their poor quality. A recent unfinished and costly exercise of pulling down illegally erected kiosks in the

city of Dar es Salaam conducted by the City Council with the aim of "keeping the city clean" demonstrated the difficulties of dealing with the influx of rural-urban migrants. Also at issue is the inadequacy of the city's institutional machinery to diagnose and respond to volatile social, economic and political pressure points among low-income city dwellers. This, of course, is compounded by the *laissez faire* system of issuing licences and the lack of policy to direct the operations of this sub-informal sector.

In Dar es Salaam, however, petty trading has created clearly recognised environmental and social-economic problems in managing the city. These include:

(i) invasion of public open spaces, road reserves, a number of streets, water drains and market places.
(ii) degradation of the environment due to generation of garbage waste which is disposed of indiscriminately. Dirtying park spaces with night soil is common.
(iii) obstruction of traffic and pedestrians by blocking their walkways with kiosks, occupying some streets and parking lots, often without permission.
(iv) obstruction of open storm water drains (open and covered) with garbage that is dumped into drains without the necessary volumes of water to remove them.

Lack of tenure of premises used by informal trade businesses is perhaps a major disincentive to operators to improve the quality of their work-premises. If traders had secure tenure of their work premises they would probably be encouraged to improve their structures and most likely up-grade the health conditions of their environmental surroundings.

Referring to street trading, Olaniyah (1988:29) argues that "the operators of the lowest cadre in the IFS can be symbiotically accommodated with the bigger and more formal activities without necessarily sacrificing environmental quality and efficiency." Olaniyah also notes that traders are aware of environmental sanitation. Often street traders have attempted to be clean and ensure that their workplaces are environmentally sound, but their capacity is obviously limited. At Ubungo, Dar es Salaam, for example, market traders decided not to deliver their contribution to the City Council but used it to privately organise and pay for the collection of garbage that kept piling at the trading site.

### *Informal Urban Agriculture*

The Tanzania Informal Sector Survey (URT, 1991) considered agriculture as an informal activity only in the urban context. For a long time agriculture in towns and cities has been treated as illegal. However, with the increase of urban service provision problems, declining urban economies, increase in urban poverty due to lack of enough and well-earning jobs to support households, urban agriculture is slowly being recognised as a significant economic activity

within the informal sector. Pressures are mounting to regulate in favour of urban agriculture promotion in a number of ways.

Already, the City of Dar es Salaam has enacted a new by-law that realises that keeping of livestock (dairy cattle, goats, pigs, chickens, etc) is now an established fact as far as urban agriculture is concerned. However, the need for regulation is clearly spelt out. The new by-law, according to the Local Government (Urban Authorities) Act No.8, of 1982, section 80, The Dar es Salaam City (Animals in City), By-Laws 1989, Section 4 and 5 stipulate that:

> 4. No person shall keep any animal within the City Area unless he shall have first obtained from the City Director a permit in the form of Schedule "A" hereto.
>
> 5. No person shall keep more than four heads of cattle in any city area.

This shows that there is some tolerance. The general attitude of urban planners and decision-makers *vis-a-vis* urban agriculture in Dar es Salaam and other towns in Tanzania is that urban agriculture is a reality in the urban landscape. Mvena *et al.*, (1992) observed that urban authorities are more hostile to urban agriculture practices when livestock keepers contravene stipulated city by-laws which may lead to strict restrictions on this informal activity. People are now allowed to keep four heads of cattle on zero-grazing basis (Daily News, March 7, 1990). The city authorities assert that the City Council is not against livestock keeping in the city; rather it is against wandering, free-grazing unattended animal (Sawio, 1993:283). Urban residents who wish to keep more animals were advised to move to the peri-urban areas.

It is worth recalling that in the mid 1970s and the early 1980s, encouragement and tolerance of urban farming was increasingly gaining ground in Tanzania. This followed the lean years (1973-74) when food shortage was acute and hunger and famine were a looming national disaster. Many urban residents who wanted to farm were promised free land by the city authorities. This land would be available in nearby villages and neighbouring districts of Bagamoyo, Kibaha, and Kisarawe.

Indeed, urban agriculture is widely practiced in Dar es Salaam, and includes a number of farming methods such as aquaculture, horticulture, waste recycling, and composting of organic wastes, fruit growing, container gardening, use of marginal land for growing food such as roadside, steep slopes, roof tops, basements of abandoned buildings, canals, vacant land in towns and so on (Smit and Nasir, 1992; van Der Bliek, 1992). This prevalence is explained by a number of factors, but one of the most important is the decline in the incomes of urban dwellers in nearly all socio-economic groups.

Crop and livestock farming is now a common features in many cities in developing countries where this practice has been tolerated. It is a survival strategy for the urban poor for the production and generation of employment. It also contributes to livelihood strategies of the "better off" and it makes use of resources in urban ecosystems which would otherwise go to waste (Sawio, 1993:7-8).

The interaction of informal urban agriculture with the environment has a number of repercussions. It is worth noting, however, that its negative aspects are due to its poor and unplanned nature. Haphazard, unplanned and uncontrolled urban farming can lead to the contamination of surface and underground water, air pollution, and even down-grading of property values. Produce from urban farming along road sides, industrial open spaces and streams and valleys may be susceptible to contamination from water, soils and air. This contamination is a potential danger to consumers.

Properly undertaken urban agriculture has various ecological benefits, however. For example, well planned urban agriculture can help a city to develop a more sustainable ecosystem by recycling waste as opposed to simply dumping it in land fills and water bodies (Sawio, 1994:14-15). There is a possibility of using carefully sorted waste that is biodegradable as manure suitable for urban agriculture. This would reduce the cost of managing wastes in urban areas. The existence of green spaces (farms) also helps to maintain good air circulation, modify temperatures, humidity levels, and generally improves urban micro climates. Hazard lands such as valleys can be improved through planting trees. Trees help in checking floods and erosion, and are a source of food and fodder.

***Settlements and Recreation***

Informal recreation activities resulting from self-help actions such as bars and dance halls can have negative influences on the environment if they are poorly located and lack basic facilities such as toilets. Their location in residential areas can lead to noise pollution as well as lowering of property values of the surrounding areas.

***Settlements and Transportation***

Informal transport exhibited mostly by privately owned vehicles, stands, repair yards, non-motorised facilities such as carts, and improvised tricycles, is economically beneficial. It can, however, affect the environment through congestion, informal (chaotic) parking which blocks pedestrian paths. Uncoordinated and unplanned laying of foot paths and roads in rural and urban areas can encourage severe erosion leading to gullies, muddy and narrow roads as well as impassable foot paths, especially during rainy periods. Proper provision of transport infrastructure is essential for sound settlement planning.

***Settlement and Informal Mining***

Informal mining activities such as sand digging in valleys and other land forms that are not licenced or controlled can have destructive effects on the physical environment. It often leads to the deepening and widening of the valley floor and valley sides. Erosion of stream banks endangers built - up structures near stream valleys. Removal of sand from river and stream valleys disturbs the ecological/geomorphological balance of the valleys. The disturbance on the stream and river discharge of debris into the sea, for example, has been associated with the worsening of beach erosion particularly on the Dar es Salaam coast zone (Mango, 1994; Harvey, *et. al.*, 1977).

*Other Types of Informal Services*
There are many other informal services which through the informal sector affect the environment. These include such activities as car washing alongside streams. The urban and rural poor utilise charcoal which has serious effects on the environment through deforestation. Domestic use of fuel wood, charcoal and kerosine contributes to air pollution and causes respiratory problems.

## Neighbourhoods and the Environment

At the level of the neighbourhood, we stress the interconnection between informal activities done by individual residents. Actions taken by one resident does affect others in diverse ways. A salient feature of such informal activities is that they are often uncoordinated. Unplanned land use development can be very destructive to the environment as integration and sustainability are rarely taken into account. A recent example in Dar es Salaam is the blocking of the drainage system by builders in Msasani which caused flooding that resulted in the closure of the only primary school in the neighbourhood. Individual efforts must be coordinated in order to enhance development and create an environmentally friendly neighourhood. This calls for a higher level institution to oversee, monitor and coordinate activities of the informal sector. Such coordination has been lacking due to a long history of neglect of the IFS in the country.

The more the limited access to resources a social groups has, the more likely it is to impact the environment negatively. The IFS often constitutes the social groups which have limited access to resources for development. As noted earlier, poor access to formal housing leads to informal construction of houses. However, as Ramachandran (1992) argues, environmental problems in (urban) human settlements are compounded by many other factors. Authorities responsible for investment in infrastructure and services, urban planning and land management often lack power and resources to fulfill that responsibility. They lack training, skills, commitment and hardware. They fail to provide or enforce the regulatory framework. Since government investment and service provision capacity is low, the potential of involving the private sector needs to be exploited.

## The IFS: Advantages and Constraints

On the whole, information on the IFS is scanty despite the appearance of some literature since the early 1970s. In Tanzania the IFS survey (URT, 1991) provides a broad and general collection of information which lacks details required for planning purposes. More activity - specific surveys are needed for a better understanding of the sector. Often extensive surveys are too aggregated and cover only larger areas at the expense of detail. Nonetheless, a discussion of the advantages and constraints of the IFS may shed some more light on what the IFS is all about.

*Advantages of the Informal Sector*
Despite the various limitations, the IFS has advantages which are widely

accepted. The IFS thrives because of its responsiveness to market forces and because of its close links with grassroots institutions (World Bank, 1989:138). Recent studies show that the informal sector exhibits obvious advantages and that the IFS can be economically efficient and profitable (Breman, 1985:45). There are difficulties in understanding the benefits when contrasted with some of the characteristics of the IFS which include, *inter alia*:

(i) low capital intensity;
(ii) a low level of productivity;
(iii) ease of entry;
(iv) a small and usually poor clientele;
(v) a low level of formal schooling of operators;
(vi) intermediate technology use;
(vii) preponderance of family labour;
(viii) family ownership; and
(ix) lack of support and recognition on the part of the government (Breman, 1985:45).

Some of the advantages of the IFS draw on the above characteristics. Lack of employment opportunities have compelled both rural and urban populations to seek other means of surviving. Ease of entry, low start up capital, is an obvious advantage.

Grassroots institutions and family networks are used to overcome difficulties encountered in operating informal sector activities. The IFS is a source of self-employment and has flexible ways of responding to the needs of the poor. Furthermore, efficient use of local resources including recycling of used materials and other wastes is clearly one of the strengths of the sector.

Operating an informal business may free the operator from regulatory constraints. However, this is not always the case where enforcement of regulations governing IFS operations is undertaken, particularly the need to acquire legal licences.

In the case of petty trading in Dar es Salaam, for instance, apart from the fact that small scale enterprises have invaded public and private land, the advantages of these enterprises are nonetheless undeniable. Petty trading is an integral element of the city economy. It contributes to the supply of self-employing income generating opportunities from which about a third of the city's labour force gain from. In addition, petty trading provides needed and affordable goods and services to the public. It provides them at locations that are apparently convenient to customers, being near their homes, work places and commercial sites. By bringing needed services closer to consumers away from the city-centre, petty trading could reduce traffic destined for the city centre and assist in decentralizing service provision. These are some of the advantages of the IFS.

### *Informal Sector Constraints*

Promotion of the informal sector has often emphasized the positive aspects at the expense of the negative aspects. More often than not, the focus has been on

the economic contribution of the sector. However, the sector has some other limitations. A major limitation of informal businesses arise due to their informality. Being informal and operating illegally, businesses lack security of tenure. As such they suffer from "impermanence syndrome".

Prospects for expansion are limited because such businesses tend to be close to acquintances in order to ensure that obligations in contracts and property rights are not violated. This however, limits access to the market and may raise costs and reduce efficiency and profits. Some informal remedies carry unsustainable long-term social costs. For example, illegal house connections to water and electrical mains impose unfair costs on paying customers; environmentally unsound methods of garbage and waste disposal pose serious health dangers; and uncontrolled exploitation of natural resources in rural and urban areas threaten the welfare of future generations.

The speed at which informal activities multiply due to rapid urban growth resulting from both natural increase and rural-urban migration, coupled with the inadequate capacity of management systems is, a serious limitation in improving the IFS. Lack of integration and persistent haphazard development of uncontrolled activities in the IFS will continue to create environmental hardships.

A summary of these and other constraints of the IFS is contained in the report on the National IFS Survey. As shown in Table 5.0, the major constraints include: lack of credit facilities, lack of equipment and spare parts, poor market conditions, lack of or poor working premises, unavailability of raw materials, poor transportation and hostile or unaccommodating government regulations.

## Control and Incentives to the Informal Sector

Whether environmental objectives cannot be pursued side by side with the sustenance of the IFS is a question which needs a clear answer. Although the contribution of the IFS to the environment and socio-economic development is widely appreciated, response to the sectors' growth, particularly in urban areas, has varied from neglect, rigid control to the provision of incentives. There has not been any clear-cut policy towards the IFS. Responses, actions, political statements from government officials on the sector and its environmental ramifications have varied considerably. Whereas the City Council of Dar es Salaam has attempted, through a number of ways, to control informal street trading and the like, some government authorities have publicly exhorted that the operators should not be harassed. Evidence abounds to the effect that attempts in other Third World cities to evict petty traders to other parts of the city away from the city-centre or sites spontaneously chosen by the operators have proved a failure.

In Dar es Salaam, though, the failure of the City Council to re-locate a number of petty trading operations could be explained by machinations by interested business people who have networks of small-scale enterprises in the guise of "permanent kiosks" in the city centre and who operate using "*Nguvu-Kazi*" obtained permits since 1983. Such enterprises have "big-shots"

**Table 10.5:** *Percentage Distribution of I.S. Enterprises by Total mention of Difficulties when establishing Business (excluding no problems)*

| INDUSTRY | Gov. Regul. | Finding Premise | Capital/ Credit | Skilled Workers | Equip/ Spares | Raw Mat. | Market /Cust. | Trans | Serv. | Other | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Agri &Fishing | 4 | 7 | 30 | 3 | 26 | 4 | 10 | 4 | 1 | 11 | 100 |
| Mining& Quarrying | 7 | 2 | 9 | 0 | 48 | 5 | 17 | 10 | 0 | 1 | 100 |
| Manufacture | 3 | 12 | 22 | 2 | 20 | 12 | 19 | 6 | 1 | 3 | 100 |
| Construction | 1 | 10 | 21 | 5 | 34 | 3 | 17 | 4 | 1 | 4 | 100 |
| Trade/Res/Hotel | 7 | 12 | 32 | 1 | 11 | 8 | 18 | 8 | 1 | 3 | 100 |
| Transport | 8 | 13 | 25 | 2 | 18 | 1 | 26 | 6 | 0 | 1 | 100 |
| C&P. Services | 4 | 20 | 21 | 2 | 26 | 5 | 17 | 3 | 2 | 2 | 100 |
| TOTAL | 5 | 12 | 28 | 1 | 17 | 8 | 18 | 6 | 1 | 3 | 100 |

*Source:* Mwinuka, J.B. (URT, 1991 National Informal Sector Survey), Table: 5.1.1.,p.1-39.

behind. Judging from what is happening in Dar es Salaam today, such enterprises have high turn-overs from selling a variety of items including beer, chicken, other cooked foods, cold drinks and other fast-going consumer goods which should legally and appropriately be sold in shops, bars, hotels, groceries and market places with valid licences where taxes can be duly collected and health and sanitary conditions observed. The caveat here is to evade taxation and to make quick profit with little regard to environmental and other peoples' concerns.

Among the measures taken to control IFS activities include demolition of unkept and illegally constructed kiosks, introduction of strict regulations, re-location of enterprises to earmarked "marginal" locations, etc. As noted, a number of IFS operators take advantage of the lax situation and continue to operate under the umbrella of a certain political party, "sympathy" by the leadership to the urban poor or low-income dwellers. Lack of a common stand or a clear policy guideline on the IFS is perhaps a result of the sector's diverse nature.

The administration of the IFS is characterized by a lack of a common guideline among the institutions involved. This is a result of lack of data on the nature and extent of the sector.

For example, the Department of "*Nguvu Kazi*" within the city council has been issuing licenses to petty traders while the city authorities, responsible for planning have been harassing the operators.

We support the contention that environmental degradation is often a result of sheer negligence and uncompromising "progress"..(Richards, 1989:16), and the view that the urban IFS and a sanitary physical environment are not strange bed-fellows (Omuta, 1986:180). What is needed is a responsive physical planning system that is more people-centred and ecologically sustainable.

**Recommendations and Policy Strategy**

***General Awareness for Policy Options***

(a) The proposed national environmental policy should encourage and support more research on the IFS in order to establish a reliable data base for planning purposes.

(b) Efforts should be made to make decision-makers and policy formulators aware that in the 21 century human settlements will, by and large, be urban in character. Contributions to socio-economic development will come from both rural and urban populations with the bigger share being urban based.

(c) Effective and efficient operation of human settlements "is essential to economic, technological, social, cultural and political development in the Third World, and that new, radical and innovative approaches are needed to ensure that the natural environment at local, regional, national and global scales can be conceived, restored, protected and left as a legacy for the future, largely urban generations" (Leman and Cox, 1991:216).

(d) In the national economic context, urban centres act like incubators of economic activities, including banking, government services on a large scale. But the vast majority (which fall under the IFS) are small-scale enterprises, ranging from, e.g. selling of snack foods, newspapers, shoe-shining and building of informal houses. In addition, cities should be considered to be centres of technological innovation. They are also the "social, cultural and political sentinels of society" (Ibid.).

(e) "Rapid and massive urbanization in developing countries is a major cause of the depletion of natural resources and the discharging of unprocessed wastes into the environment, resulting in severe health problems especially among the urban poor." (UNDP, 1993:1).

(f) Interaction between the city and rural areas is of utmost importance in Third World settings. Interactions are such that city inhabitants and the natural resource base of rural settlements are affected by environmental impacts of city-based activities or city-generated wastes. Urban settlements demand high inputs of resource: water, fossil fuels, land, and other materials needed by populations and enterprises. The larger the urban populations the higher are the demands and the greater is the effluent or wastes.

(g) City-based demand for rural resources can deprive rural users/households of the same goods. Hardoy and Satterthwaite (1991) observed that in cities where wood and charcoal are still widely used (as in Tanzania) for cooking and heating, particularly in low-income households, city demand pushes prices up beyond what rural inhabitants can afford. It is also common for rural poor inhabitants to lose the right to gather wood from what was regarded as common land as urban-based demands commercialize fuel-wood markets (Ibid.).

(h) Since most central governments lack the necessary resources and capacity to effectively respond to the deteriorating urban and rural environments affected by IFS activities, experience shows that it is necessary for policy makers to cultivate the support and local initiatives by villages and municipal governments, non-governmental organizations (NGOs) and community-based organizations (CBOs).

***Specific Policy Strategies Towards the Informal Sector and the Environment***

The policy strategies outlined here touch on only a few options. The informal sector is heterogeneous and time has not allowed a wide discussion of all aspects of the IFS. Moreover, most of the proposed strategies are sketched here in outline. The specific policy formulation should focus on:

1. The IFS must be considered when formulating and coordinating national urban strategies;

2. More efforts must be made to absorb, as much as possible, into employment increasing numbers of rural-urban migrants;

3. Boosting local initiatives in responding particularly to the environmental problems affecting low-income groups who are the majority of operators in the IFS;

4. Formulation of more positive responses to accommodate ways to improve the expansion of illegal low-income squatter settlements;

5. Establishment and management of new urban planning and management authorities which are prepared to experiment with new ideas and are less autocratic and legalistic, and are sympathetic to the plight of the low income people;

6. Development giving more opportunities to the private sector in dealing with problems of urban and rural settlements;

7. Institution of mechanisms to support community-based organization to realize their initiatives;

8. Regarding specific IFS activities, such as informal (petty trading), policies should provide a framework that specifies guidelines which are clear on:

   (a) location of petty trading (whether on specific payments or built-up areas;
   (b) types of acceptable structures;
   (c) goods and services permitted and respective valid licences to authorize them;
   (d) availability of adequate and accessible sanitary facilities;
   (e) removal of informal trading units established in areas not designated for such activities;
   (f) temporary or make-shift structures should have a minimum standard for aesthetic purposes;
   (g) operators must have valid licenses
   (h) Formation of associations or small cooperative groups of IFS activities should be encouraged;

9. Often times people spend large sums of money to provide for themselves services or infrastructure that could cost far less if it were contralised.

10. One important policy area that needs to be carefully considered is devolution of authority and resources to the local levels of decision-making.

11. People's involvement (participation) in making decisions about the level of services they need is important. This can be achieved through formation of associations of informal operators which will foster community and individual initiatives to deal with the environment. At the local level - village, ward, district - these associations could be given the authority to protect, conserve and develop hazard lands.

12. There is a need to enact by-laws or policy guidelines by central or local government to discourage encroachment of hazard lands where such encroachment hinders viable use of such lands. Housing in such areas should be discouraged and laws prohibiting this must be duly enforced. However, land laws that deprive the low-income people access to land in urban and even rural areas should be abolished.

13. IFS operators suffer from lack of markets for their produce and the poor quality of products. There is a need to improve marketing opportunities through education, improvement of skills and access to technologies which are environmentally friendly.

## Conclusion

In all its aspects the environment is becoming increasingly important in the economic well-being of human settlements. Activities of the IFS have numerous environmental repercussions. Although the scale of its impact on the environment may be small compared to the formal sector, its impacts on populations is serious as they affect mostly the urban and rural poor who lack resources. However, the sector's conflicts with the environment is largely aggravated by poor planning and provision for basic needs of the population.

Environmental impacts (mostly negative) can be minimized through deliberate efforts to increase the awareness of all parties involved in the management of modern human settlements. Mobilization of the private sector and the promotion of partnerships between the public and private in integrating the IFS in planning and managing of human settlements for sustainable development is vital.

## References


Amasi, S.R. (1990)
"A Study on Land Use Conflicts in Dar es Salaam City: A Case Study of Magomeni Mikumi and Mapipa." Advanced Diploma Dissertation, Ardhi Institute, Dar es Salaam.

Bagachwa, M.S.D. (1990)
"The Nature and Magnitude of the Second Economy in Tanzania." *Tanzania Economic Trends* Vol. 2, No.4.pp.25-33.

Berry, D. (1978)
"Effects of Urbanization on Agricultural Activities" *Growth and Change*, Vol.9:2-8.

Breman, J. (1985)
"A Dualistic Labour System? A critique of the 'Informal Sector' Concept." in Bromley, R. (ed) *Planning for Small Enterprises in Third World Cities*. Pergamon Press, Oxford., pp.43-64, etc.

Bromley, R. (1978)
"Introduction, The Urban Informal Sector; Why is it Worth Discussing" *World Development*, Vol.6.No 9/10, pp 1033-1039.

Bromley, R. and Gerry, C. (1979)
*Casual Work and Poverty in Third World Cities*. John Wiley & Sons, Chichester.

Gaile, G.L. (1992)
"Improving Rural-Urban Linkages Through Small - Town Market-Based Development. "*Third World Planning Review*. Vol. 14 (2), pp. 131-148.

Gilbert, A. (1994)
"Third World Cities: Poverty, Employment, Gender Roles and the Environment During a Time of Restructuring." *Urban Studies*, Vol.31, Nos. 4/5 pp. 605-633.

Hardoy, J.E. and Satterthwaite, D. (1991)
"Environmental Problems of Third World Cities: A Global Issue Ignored?" *Public Administration and Development.* Vol.11, pp. 341-361.
___ (1989)
*Squatter Citizen: Life in the Urban Third World.* Earthscan, London.
___ (1989)
"Third World Cities and the Environment of Poverty." *Geoforum* 15 (3).
Harvey, D. and Griffiths, C. (1977)
"Recommendations Concerning Erosion at Kunduchi Beach Hotel." Report for the Tanzania Tourist Corporation, Dar es Salaam, Tanzania.
ILO, (1972)
*Employment, Income and Equality: A Strategy for Increasing Productive Employment in Kenya.* ILO, Geneva.
ILO, (1982)
*Basic Needs in Danger.* ILO, Addis Ababa, Ethiopia.
Jacobss, P. and Munroe, D. (eds.), (1987)
"Conservation with Equity: Strategies for Sustainable Development." Proceedings of the Conference on Conservation and Development: Implementing the World Conservation Strategy, Ottawa, Canada, 31 May - 5 June, 1986, IUCN, Gland, Switzerland.
Kombe, J.W.M., (1994)
"The Demise of Public Urban Land Management and the Emergence of Informal Land Markets in Tanzania: A Case of Dar es Salaam City" in *Habitat International* Vol. 18, No. 1, pp.23-43.
Kreimer, A. and Munasinghe, M. (eds) (1992)
"Environmental Management and Urban Vulnerability." *World Bank Discussion Papers*, No.168, The World Bank, Washington D.C.
Kulaba, S. (1989)
"Local Government and the Management of Urban Services in Tanzania." In Stren R.E. and White R.R. (eds) *African Cities in Crisis.* Westview Press, Boulder Colorado, pp. 203-245.
Kyessi, A.G. (1993)
"Promoting Sustainable Human Settlement Development in Tanzania: An enabling Approach." Paper Presented at a Workshop on World Habitat Day, TEC Conference Centre, Kurasini, Dar es Salaam, September 6-8.
Kyessi, A.G. and Radford, C. (1993)
"Urban Environment, Sustainability of Cities and City Development: Case Study of the Sustainable Dar es Salaam Project." Background Paper to a regional Methodological Workshop on Urban Planning and Management for Eastern and Southern Africa. held at Kilimanjaro Hotel Dar es Salaam, October 12-20.
Leitman, J. *et al.* (1992)
"Environmental Management and Urban Development: Issues and Options for Third World Cities." *Environment and Urbanization.* Vol 4, (2) pp.131-140.
Leman, E. and Cox, J.E. (1991)
"Sustainable Urban Development: Strategic Considerations for Urbanizing Nations. "Ekistics. No. 348, May - pp.216-224.
Lerise, F.S. (1991)
"Development of Urban Functions in the Villages of Tanzania." Paper Presented at an International Conference of Urban Plans and the Management of Rapid urban Growth held at Ardhi Institute, Dar es Salaam, August 26-31.

Mabogunje, A.L. (1992)

Mabogunje, A.L. (1992)
"A New Paradigm for Urban Development." in *Proceedings of the World Bank Annual Conference on Development Economics, 1991.* IBRD/World Bank. pp. 191-209.
Madihi, M.C.D. (1991)
"Total Employment in the Informal Sector. "in *URT, National Informal Sector Survey,* Government Printer, DSM, pp.1-5 -1-12.
Mango, G.K. (1994)
"Dar es Salaam Coastal Resources Management: Proposition" A Paper Presented to a Workshop on Dar es Salaam Coastal Management within the Dar es Salaam Sustainable Project.
Mosha, A. (1989)
(a) "Planning and Development of Human Settlements in Tanzania." *Review of Rural & Urban Planning in S & E.Africa* 1/1989, pp.15-42.
____ (1989)
(b) "Urban Planning Problems in Tanzania." *African Urban Quarterly.* Vol. 4, Nos. 3 & 4, pp. 220-227, 1989.
Mwamfupe, D.G. (1994)
"Changes in Agricultural Land Use in the Peri-Urban Zone of Dar es Salaam, Tanzania." Ph.D. Thesis, Department of Geography and Topographic Science, University of Glasgow.
Mwinuka, J.B. (1991)
"Problems of Informal Sector Enterprises and Forms of Assistance Needed." in URT, National Informal Sector Survey. Government Printer, DSM, pp. 1-39 -1-47.
Olaniyah, J.A.O. (1988)
"Environmental Performance of Urban Roadside Traders in Jos, Nigeria." *Planning Outlook,* 31.1,pp. 29-34.
Omuta, G.E. (1986)
The Urban Informal Sector and Environmental Sanitation in Nigeria: The Needless Conflict. "*Habitat International*". Vol.10, No.3,pp. 179-187.
Ramachandran, A. (1992)
"Urbanization and Environment" (Schermerhorn Lecture), *ITC Journal,* 1992-4.
Richards, A. (1989)
"Controlling Environmental Degradation in Tanzania." *Splash,* Vol.5. No.2, pp. 16-17.
Rondinelli, D.A. (1987)
"Cities as Agricultural Markets." *The Geographical Review.* Vol. 77, No. 4. pp. 408-420.
Rugumamu, W. (1992)
"Impact of Population Growth on Urban Land Resources in Tanzania. "Paper Presented at the 3rd Demographic Unit Annual Seminar in Dar es Salaam, July, 9-11.
Safier, M. (1992)
"Urban Development: Policy Planning and Management, Practitioners' Perspectives on Public Learning over Three Decades." *Habitat International.* Vol. 16, No.2, pp. 5-12.
Sanyal, B. (1988)
"The Urban Informal Sector Revisited: Some Notes on the Relevance of the Concept in the 1980s." *Third World Planning Review* Vol. 10, No. 1. pp. 65-83.
Sawio, C.J. (1993)
"Feeding the Urban Masses?: Towards an Understanding of the Dynamics of Urban Agriculture and Land Use Change in Dar es Salaam, Tanzania." An unpublished Ph.D. Thesis, Graduate School of Geography, Clark University, Worcester, MA, USA.

___ (1994)
"Urban Agriculture and Urban Poverty" A Paper Presented at a Workshop on Urban Poverty Alleviation and Governance in Tanzania, Russian-Tanzanian Cultural Centre, April 14.
Seleki, B.A. (1993)
Promoting Sustainable Human Settlement Development in Tanzania." Paper Presented to a National Workshop on Implementation of Agenda 21, at Kilimanjaro Hotel, Dar es Salaam, March 29 - April 2.
Smit, J. and Nasr, J. (1992)
"Urban Agriculture for Sustainable Cities: Using Wastes and Idle Land and Water Bodies as Resources." *Environment and Urbanization*, Vol. 4, No. 2, pp. 141-152.
Sokoni, C.H. (1991)
"Growth and Spatial Distribution of Small Manufacturing Enterprises in Morogoro Town, Tanzania." An Unpublished MA Thesis, Department of Geography, University of Dar es Salaam.
Stephens, C. *et. al.* (1990)
*Health Impacts of Environmental Problems in Urban Areas in Developing Countries* (An analysis of the epidemiological evidence for the WHO Expert Committee on Urbanization), Geneva, World Health Organization.
Stephens, C. and Harpham, T. (1992)
"Health and Environment in Urban Areas of Developing Countries." *Third World Planning Review* Vol. 14 (3), pp. 267-282.
Tripp, M. (1990)
"The Urban Informal Economy and the State in Tanzania". An unpublished Ph.D. Dissertation, Graduate School, Political Science, North Western University, Evanston, Illinois.
United Nations, (1992)
*The Global Partnership for Environmental Development. A Guide to Agenda 21*, UNCED, Geneva.
United Nations Development Program (UNDP) (1993)
"Brief on the Local Initiative Facility for Urban Environment" (LIFE). pp. 5.
United Nations Centre for Human Settlements (Habitat) (1990)
*People, Settlement, Environment and Development: Improving the Living Environment for Sustainable Future*. UNHCS, Nairobi, Kenya.
United Republic of Tanzania (1991)
*Tanzania (Mainland) National Informal Sector Survey.* Government Printer, DSM, Tanzania.
___ (1992)
*Statistical Abstract*: Bureau of Statistics, President's Office, Planning Commission, Dar es Salaam.
WCED, (1987)
*Our Common Future*. (Brundtland Report), Oxford University Press, Oxford.
World Bank (1989)
*Sub-Saharan Africa: From Crisis to Sustainable Growth. A Long-Term Perspective Study*. The World Bank, Washington D.C.