

**ENVIRONMENTAL MANAGEMENT AND POVERTY
ALLEVIATION IN PERI-URBAN SETTLEMENTS:
CASE STUDY OF BLOCK L MBEZI BEACH,
DAR ES SALAAM, TANZANIA**

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1. INTRODUCTION

1.1 BACKGROUND

This report presents the findings of an 'action research' project on the role of environmental management in poverty alleviation in an unplanned settlement, known as Block L Mbizi Beach, located in the peri-urban fringe of the city of Dar es Salaam, in Tanzania. The objective of the project was to help the community to find ways of alleviating poverty through improved environmental management. The researcher assisted residents of Block L Mbizi Beach to identify and analyse environmental problems and potential in the settlement and to prepare a local environmental action plan to address their needs. The report describes the research process and analyses the main issues and problems which emerged.

The research was supported by the Municipal Development Programme for Eastern and Southern Africa (MDP-ESA), as part of its efforts to support policy oriented research by local researchers in the region. It was undertaken in consultation with, and with the cooperation of, the Dar es Salaam City authorities.

The rapid urbanisation of Dar es Salaam has been characterised by a deterioration in environmental conditions in and around the city area. In 1991/92, Dar es Salaam City Council, with the cooperation of the United Nations Development Programme (UNDP) and the United Nations Centre for Human Settlements (UNCHS, or Habitat) held discussions with stakeholders in Dar es Salaam to undertake a preliminary assessment of environmental issues. Since then, the City authorities have initiated significant changes in environmental management, which entail greater community involvement at both political and administrative levels. They have identified crucial environmental issues and implemented action plans in which all stakeholders, including the public and private sectors, non-government organisations (NGOs) and community-based organisations (CBOs), have been involved (Baruti et al., 1992; Kokusai Kogyo, 1997; Lussuga Kironde, 1999). The serious financial problems which the municipal authorities are facing has been one of the main motivating factors for the adoption of participatory, community based approaches as alternatives to direct public service provision. One such example is the commercialisation of the collection and recycling of solid waste, which was initiated in 1993 and is designed both to bring about behavioural changes which will reduce the production of solid waste, and to encourage and promote the generation of income through involvement in the delivery of sanitation services and waste recycling and reuse.

However, peri-urban settlements have not been included in, or benefited from, these changes in urban environmental management. This is of great concern, since it is likely to create 'poverty reserves' in the near future, as urbanisation increases. Urban poverty tends to be concentrated in ecologically vulnerable areas, such as squatter settlements built in flood prone and environmentally degraded locations, or unplanned settlements in peri-urban areas (Leonard et.al., 1989; Leach and Mearns, 1991). Block L Mbizi Beach, the site chosen for this study, is one of these ecologically vulnerable settlements.

1.2 POVERTY AND ENVIRONMENTAL DEGRADATION IN PERI-URBAN SETTLEMENTS

1.2.1 Introduction

The concepts of *urban environmental degradation* and *urban poverty* are closely related and interdependent. The term *urban environment* is used here to refer to the natural resource base and environmental services that are essential for sustaining livelihood in urban or peri-urban settlements, while the term *urban poverty* is defined as a lack of basic needs rather income alone. Table 1 lists some of the more important indicators or dimensions of environmental degradation and poverty in peri-urban settlements.

Table 1: Indicators of urban environmental degradation and poverty in peri-urban settlements

Indicators of environmental degradation	Indicators of poverty
<ul style="list-style-type: none"> • Increased presence in human environment of pollutants (especially excreta) or pathogens with serious health impact • Increased air and water pollution • Inadequate supply of safe drinking water • Poor quality of housing, sanitation and infrastructure and overcrowding 	<ul style="list-style-type: none"> • Houses built on easily acquired but environmentally-hazardous sites and in ecologically vulnerable areas • Houses built on land without tenure • Lack of sanitation and waste disposal facilities • Poor public health standards and rampant disease • Lack of sewerage and storm water drainage systems

Source: Adapted from Leach and Mearns (1991)

It is obvious from these indicators of urban environment degradation and poverty, that there is a causal relationship between the two concepts. Environmental degradation in peri-urban areas contributes to the process of impoverishment by affecting people's health and thus limiting their capacity to earn income. This is the main reason why peri-urban settlements are considered to be 'poverty reserves'. Because of this causal relationship, policies to improve environmental management services in the emerging slums and peri-urban settlements of Tanzania will greatly contribute to the alleviation or reduction of urban poverty. It can be strongly argued that reducing the environmental threats to ill health can help to reduce poverty long before income growth does (World Resources Institute, 1999).

1.2.2. Environmental Problems and Poverty in Emerging Slums in Tanzania

In Tanzania, like other developing countries, poor urban households spend a significant proportion of their limited regular income on food and energy. Their savings, assets and retirement benefits are low. After retirement most of the pensioners and their families therefore settle in the unplanned, peri-urban areas of cities. They build houses on small plots of land, on which they undertake agricultural activities and animal husbandry (mainly keeping diary cows, pigs and chicken) as a means of earning an income.

Poverty forces pensioners to sell part of the land to fellow pensioners, property developers and land speculators. Progressively, therefore, the peri-urban settlements develop into unplanned squatter settlements. As the cultivatable land acreage decreases, the income which can be earned from agriculture also becomes insufficient, thus contributing to further poverty for those who depend on urban agriculture for a livelihood. Animal husbandry in these communities has become the most viable economic venture. However, this creates environmental problems, particularly the smell which arises from the slurry from cows and pigs and chicken manure. Furthermore, because of the diminishing land area, grazing becomes difficult. People therefore opt for 'zero grazing' (ie. stall feeding) of cows, while pigs and chicken are fed on industrially produced feed or feedstocks brought from the countryside. This also has a negative environmental impact, since natural resources are imported into the urban ecology as animal feed, while waste in the form of manure and associated pollution of ground water resources are exported. There is thus a need to find alternatives to traditional agricultural practices as a means of generating income in the peri-urban areas, in order to create more jobs and improve the livelihood. Controlled intensive agriculture is one of the income generating options which has great potential to improve the peri-urban environment (Brock, 1995).

Poverty also hinders the communities in these peri-urban areas from having fundamental social services, like good road networks, sound water supplies, electricity and waste (liquid and solid) collection services. The central government and municipal authorities have no financial resources to provide urban infrastructure, sanitation or proper environmental health services in these fast growing areas.

These trends in physical, social and environmental conditions are typical of urban poverty, as defined by Matovu (1997). To meet the challenges, some communities have formed their own associations, with the objective of finding common solutions to their problems of poverty and environmental degradation. However, this objective can only be realised if the targeted beneficiaries in these peri-urban communities have access to information on issues such as environmental problems, food security, and economic problems and opportunities. The residents need better knowledge of the type of services they require in order to improve their health and wellbeing. For example, many people are not aware of the linkage between urban environment and waste management techniques. They lack information on how the employment opportunities and income of peri-urban farmers can be improved by integrating food production (e.g. horticulture, hydroponics, mushroom cultivation) with urban environment and waste management techniques, like organic waste recycling. Improved awareness helps to mobilise effective community participation and facilitates community interventions in solving the problems facing them. It also helps to compensate for limited institutional capacity in environmental regulation and enforcement.

This research focused on the potential of peri-urban communities to improve their own lives, alleviate poverty and solve environmental problems through the use of natural resources of *zero opportunity cost*. Such resources include vacant land, unemployed labour, liquid and solid household waste, composted municipal solid waste, and animal and poultry manure. These natural resources of zero opportunity cost can be converted into foods through *bioconversion technology*. One such example is the composting of organic waste to form humus, which can be used as fertiliser or soil stabiliser in urban farming practices (Mathur, 1991; Finstein, 1992; Lardinois and van de Kludert, 1993). The best use of urban solid waste and wastewater in peri-urban areas is to recycle it through cultivation for food production, provided that it is subject to strict public quality control. If all our urban organic waste was turned back into crop nourishing humus, think how fertile the farmlands in peri-urban Dar es Salaam would become.

1.2.3 The Need for New Planning Approaches

The design and operation of new projects for improving livelihood or environmental services in unplanned peri-urban communities can only be successful if the residents of the community, as individuals and collectively, feel that they own the project. Experience from Brazil and Albania has shown that, when community dwellers find practical solutions to their problems themselves, they are more likely to commit themselves to putting these solutions into effect. Thus the community dwellers should be empowered to influence the economic and other development initiatives and decisions which affect them and to share control of their resources (World Bank, 1996).

In the past, many of the programmes designed to improve the environment and livelihoods in urban and peri-urban communities in Dar es Salaam followed the conventional process of urban environmental planning. Development programmes were injected into the communities from above, either by higher authorities or by donors, without consultation with the beneficiaries. Most of these projects failed because the targeted beneficiaries did not feel that they owned the programmes and therefore were not committed to their success. In order to address these problems, the City authorities are seeking to apply Environmental Planning and Management (EPM) processes, which encourage partnership between the public, private and community sectors in the field of environmental planning and management. This objective can be achieved if the municipal government moves away from the conventional centralised environmental management planning to decentralised, integrative participatory environmental management planning and peri-urban agriculture (Asomani Boateng and Haight, 1995).

However, as already indicated, in order to be able to participate effectively, communities have to be able to diagnose the economic and other development problems in their communities and they require information on solutions to these problems. This information can be acquired through public awareness campaigns. Furthermore, the stakeholders, as individuals or in groups, should be able to generate and share information, establish priorities and specify objectives, and develop tactics to solve their problems.

There is also a need to review urban planning policies. The existing policies recognise the existence of urban agriculture, but do not take account of the environmental conditions under which it can be practised. This situation has created ambiguities and

conflicts between urban planning regulations and City by-laws on the one hand and urban agricultural activities on the other. These problems will affect any attempts to upgrade unserved peri-urban communities into formal planned settlements.

1.2.4 Partnerships for Sustainable Environmental Management and Poverty Alleviation

The successful management of urban environmental services in times of rapid urbanisation and social and economic change, requires the combined resources, skills and know-how of the private, public and community sectors. In Tanzania, like most developing countries, the potential contributions of the private sector towards sustainable human settlement development and public-private partnerships have only been marginally explored (Lerise, 1998; UNCHS, 1999). The possibilities for mutual benefits are as extensive and varied as the private sector itself and there is much scope for further exploration of cooperation and partnerships to tackle social, economic and environmental problems in a sustainable manner.

Partnerships for poverty alleviation and environmental management between city and government departments, CBOs and NGOs, and the private sector will assist the government to address several issues of concern to the urban poor; for example, to improve social services, increase employment and apprenticeship opportunities through cooperation with the private sector, improve land security, and develop special environmental services for marginalised groups. The private sector, driven by the economic opportunities of involvement in environmental service provision, will invest in small-scale businesses, such as wastewater and solid waste disposal, and in waste re-use technologies (Kivaisi and Rubindamayugi, 1993, 1994).

One of the objectives of the research project was to initiate and demonstrate a process of cooperation between the public (central and local government), private, and community (Block L Mbezi Beach) sectors, in order to implement the *Habitat Agenda 21* goal of sustainable human settlement development. In order to create an enabling environment for local private sector participation and enhance its role in sustainable human settlement upgrading, members of the private sector in the community were trained in environmental technologies, like waste processing, recycling and re-use, and involved in the development of the environmental policies and plans of action.

1.3 STRUCTURE OF THE REPORT

The rest of the report is divided into four sections. Section 2 explains the research objectives and methodology. Section 3 describes the environmental situation in the study area. Section 4 then analyses the issues and problems which arose in the course of the research and their wider implications. Finally, section 5 presents some recommendations for future environmental management and poverty alleviation programmes in settlements like Block L Mbizi Beach. The main product of the research, the environmental action plan prepared by the community, is reproduced as Appendix 1 of the report.

2. RESEARCH OBJECTIVES AND METHODOLOGY

2.1 OBJECTIVES

2.1.1 General Objectives

As already indicated, this was an action research project. There were, therefore, two basic objectives:

1. To alleviate poverty in Block L Mbizi Beach through improved environmental management; and
2. To learn lessons from this experience for use in the planning and upgrading of other peri-urban settlements.

2.1.2 Specific Objectives

In order to achieve the first general objective, that of alleviating poverty in Block L Mbizi Beach through improved environmental management, the project aimed to:

- Strengthen the community's organisational and planning capacity to enable it to identify and analyse its economic and environmental problems and find appropriate solutions to these problems;
- Promote the use, re-use and recycling of solid and liquid waste and other 'zero opportunity cost' resources for food production and other economic activities, through the dissemination of information on appropriate technologies;
- Promote partnerships between the public sector (central government and City authorities), the local private sector and community-based organisations in achieving the above objective.

2.2 METHODOLOGY

2.2.1 Introduction

In order to achieve the first general objective, that of alleviating poverty in Block L Mbizi Beach through improved environmental management, the researcher worked with the local community to identify issues and problems and prepare an environmental action plan to address them. The work involved five main stages:

- Identifying the community;
- Creating a community network;
- Setting up a coordinating committee;
- Identifying environmental priorities and needs;

- Formulating a local environmental action plan.

These are described in turn below.

In order to achieve the second general objective, that of learning lessons from the experience in Block L Mbizi Beach, the research findings were discussed at a national consultative workshop, held in Dar es Salaam on 12 July 1999. A list of the workshop participants, who included community leaders, representatives of relevant central and local government agencies, other stakeholders and MDP-ESA, is attached as Appendix 2.

2.2.2 Identifying the Community

Communities or settlements in cities differ in size and organisation and these differences affect the way in which they can be organised to take community action to upgrade their environment. For this reason, the first stage of the research was to conduct a survey of the community, in order to identify the stakeholders, learn how the community is organised, and find out about the main issues and concerns. Participatory rural appraisal (PRA) methods (Cotton et. al., 1995) were used in the survey.

The following information was gathered through a sample household survey, interviews with key people, focus group discussions and direct observations:

- How the community is organised, including the nature and objectives of the local community-based organisation (CBO), Block L Mbizi Beach Development Association;
- Agricultural and animal husbandry activities in the community, including types and sources of fertiliser, types of vegetable crops grown and the degree of irrigation and water use;
- Existing waste re-use and recycling practices;
- Income generating potential and savings from agricultural activity;
- Land ownership by community members.

The survey also enabled contact to be made with elected local government leaders and leaders of the CBO.

2.2.3 Creating a Community Network

A community network was created, consisting of local government leaders, CBO leaders, and groups and individuals who shared a strong desire to improve the environmental conditions in the community neighbourhood. It included groups that were already actively working on existing programmes as well as those that were interested in offering their support. Efforts were made to include individuals who were able to contribute to the action research, even if just by raising their own members' awareness. Through the community leaders, a list of central and municipal government leaders, NGOs and civic societies who were to be contacted as stakeholders in the urban upgrading process was made. Discussions were also held with community leaders, women's groups, municipal leaders and other stakeholders on appropriate channels for developing an environmental action plan for the settlement.

2.2.4 Setting up a Coordinating Committee

A Community Action Coordinating Committee was formed, consisting of selected members of the community leadership and other community representatives, who agreed to help promote and support the community-based initiative of developing a local environmental action plan for the settlement. The members of this coordinating committee were proposed and approved by the Block L Mbezi Beach Development Association at a public meeting. The committee organised meetings for members to engage in 'round table' discussions on matters regarding their environment and efforts to upgrade the unplanned settlement. Three such meetings were held. The main topics of discussion were the state of environment in the community, low cost environmental management technologies and the economic benefits of waste recycling. The need to develop a local environmental action plan, as part of a strategy of long term planning to improve the community neighbourhood, was also discussed.

Through these consultations, it was possible to identify individuals and groups interested in undertaking waste recycling activities, like composting, mushroom cultivation and biogas production from animal manure. Arrangements were made to conduct training for women's groups and other individuals and groups interested in exploiting the economic potential and environmental benefits of these activities.

2.2.5 Identifying Environmental Priorities and Needs

By bringing together local government leaders and community residents, it was possible to identify the environmental problems facing the community. A workshop-based method was used in establishing the priorities for poverty alleviation and environmental protection. This was done in accordance with the aims and objectives of the Block L Mbezi Beach Development Association constitution. It involved multiple information sharing meetings regarding community environmental problems and possible solutions. In the meetings, the researcher took a facilitatory role: sensitising the residents on basic sanitation issues and helping them to prioritise environmental issues in relation to perceived needs and available resources.

Working through these focussed discussion seminars, the researcher helped the residents to identify some critical environmental and sanitation hazards that could be resolved through waste recycling and re-use and on-site sanitation waste management systems. In setting the priorities, the community was asked to take into consideration any existing environmental management initiatives of which they were aware, such as composting and recycling of solid and liquid waste, planting trees, waste disposal and natural environmental protection.

An important component of this process was to identify those individuals and institutions which should be involved in order to make the environmental management initiatives a community-wide success. Members were also appraised of existing community environment upgrading projects in Dar es Salaam which related to their initiatives. These are the upgrading of unplanned settlements (Tabata, Kijitonyama, Hana Nasifus, Mbezi C), the Community Infrastructure Programme (CIP), Waste Management Systems, Safe Cities and the Sustainable Cities Programme.

2.2.6 Formulating a Local Environmental Action Plan

A *local environmental action plan* is a brief document, which states the environmental priorities for the local community, the lead organisation(s) for each issue and some of the projects which will support the community goals. The Block L Mbizi Beach Local Environmental Action Plan was understood to be a guiding document to achieve the goals and objectives regarding the community environment set in the memorandum of association of the Block L Mbezi Beach Development Association.

To prepare this action plan, the Coordinating Committee held two public workshops at the beginning of the process to discuss the drafting of the plan. The workshops included discussion of issues such as:

- What are the priority environmental issues for our community?
- What can your community/Association do to help?
- What support do you need?
- Which institutions can offer help?

The Coordinating Committee then drafted the Local Environmental Action Plan (which is reproduced in Appendix 1) and presented it to a final public workshop, consisting of the Block L Mbezi Beach Association Assembly. The Assembly deliberated on the action plan and ratified it.

3. POVERTY AND ENVIRONMENTAL MANAGEMENT IN BLOCK L MBIZI BEACH

3.1 INTRODUCTION

This section of the report provides an overview of the Block L Mbizi Beach community and its environment. The information is derived from the community survey undertaken in the first stage of the research.

3.2 COMMUNITY STRUCTURE, LEADERSHIP AND ORGANISATION

Block L Mbezi Beach community is situated in Mbezi Beach, which is in the Mtongani Ward of Kinondoni District. The geographical boundaries of the settlement comprise Bagamoyo Road, Africana Road, Jangwani Beach and Mtongani Police Barracks. There are more than 300 households in the settlement.

Under the local government administrative structures, the community has its own elected leader and supporting staff. The local government has successfully mobilised the residents to work for the common goal of improving environmental conditions in the neighbourhood. In 1996 the community formed a community-based organisation (CBO), which was registered by the Registrar of Societies of the Ministry of Home Affairs as a non-government organisation (NGO). The CBO, which had 93 founding members, is called Block L Mbezi Beach Development Association and its registration number is 8960.

The main aims and objectives of the Association are to:

1. Promote co-operation and a sense of unity among its members;
2. Promote the improvement, protection and preservation of the environment of Block L, including the adjacent areas;
3. Promote development through the Association in all fields of economic activity with the further aim of raising the standard of living of the residents;
4. Provide social amenities;
5. Encourage the residents to engage in business;
6. Disseminate information on business and other economic ventures;
7. Provide a link between the residents and the Authorities in the implementation of development projects;
8. Ensure the adherence by residents to all laws that impact, *inter alia*, on land and land ownership, including City Council Regulations and City By-Laws;
9. Cooperate with other relevant bodies whose aims and objectives are similar or will advance the aims and objectives of the Association.

To implement the above aims and objectives, the community has made specific undertakings. Among these are the improvement of environmental infrastructure, like sewerage and drainage, and the maintenance of a green environment by planting trees. The Association's activities are led by a number of committees, whose members are

elected. The CBO and local government leaders work hand-in-hand to promote community based initiatives.

3.3 STATE OF THE ENVIRONMENT IN THE COMMUNITY

The Dar es Salaam City Council’s Commissioner for Urban Planning is greatly concerned about the increase in urban population and expansion of unplanned peri-urban settlements at a rate beyond the resources and capacity of DCC to provide environmental services and infrastructure, like water supply, sewerage, waste collection and access roads (Ndunguru, personal communication). The municipal authority is also concerned that most of the people who come to Dar es Salaam to seek employment and other opportunities settle in the peri-urban areas upon retirement, thus contributing to the expansion of unplanned peri-urban settlements. Block L Mbizi Beach is one such settlement.

Table 2 indicates the methods used to dispose of domestic solid waste in the settlement, based on the sample household survey conducted in the first stage of the research. The main disposal method is open disposal (ie. dumping) on land (85%), followed by burning (57%) and burying waste in pits (46%). The community has no community waste disposal site and no liquid and solid waste collection services. Furthermore, were such services to be provided, some houses are not easily accessible, especially during the rainy season, because of the poor road network.

Table 2: Solid waste disposal methods used by sample households

Disposal method	No. respondents	% respondents
Open disposal	22	46.0
Burying in pits	40	85.0
Burning	27	57.4
Total	47*	

* Most of the households used more than one method of solid waste disposal

Residents were asked whether they were happy with the present waste disposal methods. Forty-two of the 47 respondents (89%) said they were not happy. Table 3 shows the main problems they were experiencing. They include flies (78%) and the foul smell from open disposal sites (51%). This is because the pits for solid waste disposal are only covered with soil after two to three months of use. In the meantime, the decomposing waste attracts flies and gives a bad smell

Table 3: Perceptions of waste disposal problems among sample households

Type of problem	No. respondents	% respondents
Flies	37	78.0
Full pit	33	70.0
Odour	24	51.0
Type of waste	1	16.6
Total experiencing problems	41	87.2

Forty-five of the 47 sample households have invested in connecting their houses to the piped water supply system. The other two households were obtaining water from a standpipe. However, due to lack of formal urban planning, water pipes are laid in the ground along and across the unplanned roads and thus are frequently broken (see Figure 1). This not only causes permanent pools on the roads, but also creates a public health risk; the on-line water can easily be contaminated with bacteria, since faecal material from overflowing pit latrines, septic tanks and soakpits are discharged on land, due to the lack of liquid waste collection services. The problem is magnified by the fact that the settlement is located on low-lying land with a high water table.

3.4 ROLE OF AGRICULTURE IN THE COMMUNITY

In peri-urban settlements, many people practise urban agriculture, including animal husbandry, for subsistence and/or income generating purposes. Most of the households in Block L Mbezi Beach community fall into this category. This was evident from information provided by Block L Mbizi Beach Development Association (Table 4) and the household survey (Table 5).

Table 4, which indicates the main occupation and source of income of the 93 founding members of the Block L Mbizi Beach Association, shows that 35.5% earn their living from urban agriculture. These are mainly retired former employees of government and public institutions.

Table 4: Occupations of founder members of Block L Mbizi Beach Association

Type of occupation	No. members	% members
Employed	46	49.5
Farmer	33	35.5
Self employed	14	15.0
Total	93	100.0

Table 5: Agricultural activities of sample households

Agricultural activity	No. households	% total
Crop production and animal husbandry	19	40.4
Crop production only	23	48.9
Animal husbandry only	1	2.1
No agricultural activity	4	8.5
Total	47	99.9

Table 5 shows the number of respondents in the household survey engaged in crop production and/or animal husbandry. Forty-three (91%) of the 47 households were engaged in some form of urban agriculture. Nineteen households (40% of respondents) were engaged in both crop production and animal husbandry, 23 (49%) only in crop production and one (2%) only in animal husbandry.

Figure 1: Leaking water pipe forming a pool in the middle of the road in Block L Mbezi Beach unplanned settlement.

The crops being grown are food crops, the main ones being vegetables, bananas and fruits. Table 6 shows the number of sample households growing each type. Only two of the 42 crop farmers (4.8%) said that they were producing crops for sale; the majority were producing food for domestic consumption. Many of the residents expressed their desire to grow vegetables as an economic venture but said that they faced a problem of marketing their produce, a factor that discouraged them from engaging in intensive vegetable farming. This will be a problem in improving the management of organic solid waste, since intensive urban farming is one of the most obvious ways of using composted domestic waste and animal manure. Only three of the crop farmers (7.1%) were practising irrigation.

Table 6: Types of crops grown by sample households

Crop	No. households	% all crop farmers
Vegetables	42	100.0
Fruits	37	88.1
Bananas	31	73.8
Total crop farmers	42	100.0

The animals which people keep on their plots include dairy cows, pigs, chicken, goats and dogs. Table 7 shows the number of sample households keeping each type. The average number of animals per household was 6.5 cows, 53 pigs and 300 chickens. These findings suggest that livestock keeping tends to be an income generating or poverty alleviation activity, rather than a means of supplementing domestic food supply.

Table 7: Types of animals kept by sample households

Type of animal	No. households	% all households keeping animals
Dairy cows	13	65.0
Goats	11	55.0
Pigs	6	30.0
Chickens	10	50.0
Dogs	13	65.0
Total households keeping animals	20	100.0

Table 8 shows the methods which the sample households were using to dispose of animal manure. All of the households who keep animals were putting manure straight onto their own gardens as fertiliser, while some were also collecting some of the manure in pits, which are later used for growing bananas. Only one farmer with a large number of animals was selling the manure, and only one had no use for some of his manure and was disposing of it in the open pits. Only two farmers were practising proper composting. However, those farmers collecting manure in pits can be said to be practising a form of composting. Composting is a way of using domestic solid waste and manure as a fertiliser in urban agriculture, thus minimising the amount of solid waste for disposal. The residents were taught to use agricultural waste in the form of dry banana leaves as substrate for growing mushrooms (see Figure 2). This was the type of organic waste recycling found to be most attractive to the residents.

Table 8: Animal manure disposal methods used by sample households

Disposal Method	No. households	% households keeping animals
Dumped in garden	20	100.0
Collected in pit	7	35.0
Composted	2	10.0
Sold as fertiliser	1	5.0
Discarded in open pits	1	5.0
Total keeping livestock	20	100.0

3.5 LAND TENURE AND COMMUNITY STATUS

It was found that most of the residents of Block L Mbezi Beach do not feel secure on their plots and do not consider themselves members of a legally recognised community. The cause of this sense of insecurity was the fact that they do not have tenure to the land on which they have built houses and earn a living through agriculture and animal husbandry. This appears to have been the main driving force behind the formation of the Block L Mbizi Beach Development Association.

Previous studies on access to planned land in Dar es Salaam have indicated that the socially less powerful and low income members of society have great difficulty in acquiring plots in planned areas of the city, because the market prices of the plots are too high for poor people to afford (Lussuga Kironde, 1995). This implies that it is poverty that forces people to live in unplanned peri-urban settlements like Block L Mbezi Beach, where plots can be acquired cheaply. Official urban settlement policy regards the unplanned peri-urban settlements as illegal, which means the residents are subject to eviction without warning. This state of uncertainty regarding their residency, discourages people from devoting their resources and energy to improving their environmental infrastructure, especially the neighbourhood living conditions (Audefroy, 1994; Lee, 1994). The importance of this point in Block L Mbizi Beach emerged clearly from the research, since the issue of acquisition of title for the land dominated all the community consultation meetings related to community environmental concerns and improvement. Furthermore, the need to formalise land tenure and the status of the settlement ranked high among the environmental priorities identified in the formulation of the Local Environmental Action Plan.

From this observation, one can conclude that the City authorities' long-term objective under the Sustainable Dar es Salaam Project (SDP), which is to mobilise communities to participate in improving environmental services, will only be successful if residents can gain title to the land they occupy. When given security of land tenure, the residents of Block L Mbezi Beach will be motivated to invest in environmental services and infrastructure, as they have done in getting piped water into their households (see section 3.3).

Figure 2: Residents of the community looking at a bag of banana leaves used as a substrate for growing mushrooms

These efforts, if amplified, will reduce flooding problems in the community and contribute to improved community infrastructure. Similar observations have been made in other cities of developing countries which are trying to build sustainable urban communities through community participation (USAID, 1991; Lee, 1994).

3.6 COMMUNITY EFFORTS TO IMPROVE THE ENVIRONMENT

Despite the lack of incentives to improve their environment, the Block L Mbizi Beach Development Association has made a number of efforts to tackle the problems facing the community.

The main focus of attention has been the status of the settlement and the related problem of insecurity of land tenure. The community leaders approached the Dar es Salaam City Commission (DCC) and the Ministry of Lands and Human Settlements Development (MLHSD), to try to persuade them to upgrade the area to a formally planned settlement within the Dar es Salaam City planning area and to provide the community members with secure land tenure. The CBO leaders acted as a link between the DCC, MLHSD and other government institutions to achieve these tasks.

Some progress was made. The City's urban planning department agreed to take up the issue and prepared a draft plan for the settlement. However, this plan was not acceptable to the community. The main problem was that the plots which the residents were allocated in the plan were much smaller than those they were currently occupying. The reason for this was that MLHSD empowers urban councils only to allocate high density residential plots. Thus, formalisation of the settlement by the DCC would mean converting the peri-urban settlement into a high density area. The residents would thus lose land currently used for urban agriculture and, under the current by-laws, they would not be allowed to keep livestock. Furthermore, since the DCC does not have enough financial resources to service all the planned settlements, there was no guarantee that the formalisation of the settlement would result in any improvement in roads, sanitation or other infrastructure. The conversion of the area into a high density settlement would thus have meant that the community would be worse off than at present, since there would be increasing public health risks due to environment degradation and they would have lost their source of income from peri-urban agriculture.

The community, therefore, refused to accept the draft plan. They were, thereafter, requested by the DCC to hire a private surveyor to prepare their own plan, which could then be evaluated by the City's planning department. The Association mobilised the residents to raise funds to hire a surveyor and an alternative plan was prepared, but the plan was rejected by DCC.

The other major focus of attention has been road construction and maintenance. The Association has made an effort to construct and maintain roads in the settlement, with the help of the DCC. The residents purchase gravel from quarries, which is obtained using transport from the DCC. The money to purchase the gravel comes from a community fund, made up of voluntary contributions by members of the Association. A bank account has been opened for this purpose. However, the road which has been

constructed through these self-help efforts has no drainage system and is therefore likely to be destroyed by runoff water.

The action research project has stimulated further such efforts. In the process of doing the study, the community was, as already indicated, motivated to formulate an environmental action plan, which addresses the environmental problems facing the community and stipulates the actions needed to solve the problems. Furthermore, some of the residents have started to construct a drainage system (see Figure 3). The Association also has plans to expand its activities to improve education, health and sanitation services. These activities are in line with the Association's aims and objectives and it has committees responsible for each.

Figure 3. Drainage system constructed during the course of this study as a result of community initiatives

4. IMPLICATIONS FOR ENVIRONMENTAL PLANNING IN PERI-URBAN SETTLEMENTS

4.1 INTRODUCTION

This section of the report discusses the issues and problems which emerged from the action research in Block L Mbizi Beach and the ir implications for future efforts to alleviate poverty through improved environmental management, both in the study area and in other peri-urban settlements in and around Dar es Salaam. The issues are discussed under two main headings: the problems created by existing urban planning regulations and by-laws and the factors which determine the effectiveness of community involvement in environmental planning and upgrading programmes of this nature.

4.2 URBAN PLANNING REGULATIONS AND BY-LAWS

4.2.1 Introduction

The DCC, under the Sustainable Cities Programme (SCP), has been making efforts to harness community initiatives to upgrade community infrastructure and sanitation services. Some of these efforts are being implemented under the Community Infrastructure Programme (CIP). Communities already involved in this programme include Hanna Nassif, Mbezi Block C, Tabata and Kijitonyama. It is through similar initiatives that the Block L Mbezi Beach community wants to develop its community infrastructure and improve the neighbourhood environment. However, the findings of this study suggest that this can only be achieved if the existing urban planning regulations and Dar es Salaam municipal by-laws are redefined. It is unfortunate that many of the current planning and environmental management regulations and by-laws are outdated and unenforceable, since they do not reflect the circumstances prevailing today in urban settlements (Lussuga Kironde, 1999). This is particularly true in peri-urban settlements like Block L Mbizi Beach, where agriculture plays a major role in both the existing and the potential future means of livelihood of the residents. There are two main problem areas: the impact of the regulations on urban agriculture and their environmental implications.

4.2.2 Impact on Urban Agriculture

Earlier studies have indicated that conflicts exist between urban planning and environmental management regulations and efforts to alleviate poverty through urban and peri-urban agriculture (Sawio, 1993, 1998a, 1998b). There are three main sources of conflict:

1. As already noted in section 3.6, urban planning regulations limit the size of plot which can be allocated in high density residential suburbs, and therefore the amount of land available for agricultural purposes.

2. Urban planning regulations recognise the existence of urban agriculture, but limit its practice. The main limitations, which are prescribed in the Town and Country Planning Ordinance (CAP.378), 1992, Section 78, which regulates peri-urban farming within the statutory municipal boundaries of Dar es Salaam, are as follows:

- No person is allowed to occupy or use more than three acres of land for urban farming;
- No person may, unless he or she practises zero-grazing, graze his/her animal in an urban area;
- Any farming activity which may be deemed to constitute a nuisance in the form of noise or smell or to pose a physical danger to the safety of the public, is not permitted in areas other than those specifically zoned for urban farming.

3. The DCC, which also recognises urban farming and employs its own agricultural extension workers, has its own by-laws to regulate urban farming, especially animal husbandry. These by-laws state that:

- No person shall keep any animal within the City Area unless he/she shall have first obtained from the City Director a permit in the form of Schedule "A" hereto;
- No person shall keep more than four head of cattle in any City Area;
- No person shall graze any animal within the City Area;
- Subject to any permit issued under these by-laws allowing animals to be moved, all animals within the City Area shall be kept in a building, structure or enclosure approved by and maintained to the satisfaction of the Council;
- No animal shall be kept in any building or any part of such building which is used for human habitation;
- The Medical Officer or Health Officer may require any person permitted to keep animals in the city area to make arrangements for removal of manure, liquid fifth and refuse as he/she shall consider necessary;
- The Medical Officer or Health Officer may at any reasonable time enter upon premises in which animals are kept for the purpose of inspecting such premises and any person obstructing such officer or hindering the officer or giving false information shall be guilty of an offence;
- Any person permitted to keep or move animals within the City Area shall on request produce his/her permit to any Police or authorised officer; and
- Any person who contravenes or fails to comply with any of the provisions of these by-laws or the conditions of any permit issued here under shall be guilty of an offence.

These regulations and by-laws create problems in the upgrading of peri-urban settlements like Block L Mbezi Beach. The combination of the small size of the standard plots allocated in planned settlements and the restrictions on the number of livestock which may be kept, make it difficult to accommodate households who depend on agriculture, especially animals husbandry, as their main source of livelihood. As already indicated in section 3.5, the 20 survey households practising animal husbandry in Block L Mbizi Beach kept an average of 6.5 cows, 53 pigs and 300 chickens on their plots. Even if the regulations permitted such numbers to be kept, the small size of plots could not accommodate them. They would cause

environmental problems and neighbourhood conflicts. However, any attempt to force these peri-urban farmers to cut down the number of animals or relocate them to the periphery of the City will deny them their main source of income and thus increase their poverty.

These regulations and by-laws are, as we have seen in section 3.6, already causing conflicts in the attempts to upgrade Block L Mbezi Beach into a planned settlement. The draft plan for the area prepared by the City's planning department had no provision for larger plots to accommodate households where animal husbandry is the main source of income. The residents therefore rejected the plan and, at the request of the City authorities, prepared their own plan, which was in turn rejected by the authorities. The extent of this conflict was manifested in the national consultative workshop, at which the findings of this study were discussed.

4.2.3 Environmental Implications

There is no provision to vary the urban planning regulations and by-laws to take account of the variations in geographical conditions, such as geology and topography, between individual settlements. This creates major environmental management problems and makes it difficult to adopt innovative environmental management technologies which could help to alleviate poverty in these settlements.

The geographical conditions in Block L Mbezi Beach demand site-specific urban planning. For example, part of the settlement is a low-lying basin with a high water table. This results in the overflowing of soak pits, especially during the rainy season. This problem could be partially solved by having enough land to allow the recycling of domestic wastewater for horticulture, through underground irrigation and/or hydroponics. Similarly, in settlements like this one, where a large number of households practice animal husbandry, the land allocation should take this into consideration and provide plots which are large enough to allow on-site recycling and re-use of animal slurry and manure, which can be turned into value-added products like biogas and organic fertiliser. A survey conducted during the research indicated that most of the livestock keepers were interested in having biogas digesters. They were ready to invest in such waste recycling technology but they felt the current cost was prohibitive. Biogas digesters can be used to recycle all forms of organic household waste. This eliminates the need to dispose of such waste in a landfill, which is an environmentally unfriendly waste disposal method with local and trans-boundary pollution impacts. Moreover, the slurry from the digesters can be used as fertiliser and thus converted into food. There is, therefore, a need for a deliberate move by municipal governments to promote on-site wastewater treatment, especially in settlements, such as Block L Mbezi Beach, where the authorities are unlikely to have the resources to provide a centralised sanitation system in the near future.

The current practice of allowing urban agriculture in urban and peri-urban settlements without taking environmental conditions into account and making appropriate provisions for them (such as allocating plots of sufficient size), also creates problems in terms of maintaining a good neighbourhood environment. For example, the nuisance created by the smell of animal slurry or noises from domestic animals has been a source of social conflicts in both medium and high density settlements.

These examples suggest that Block L Mbizi Beach's rejection of the settlement plan prepared by the DCC, which would convert the settlement into a high density area, was justified from an environmental point of view. The formalisation and upgrading of the settlement using the draft plan prepared by the DCC with standardised plot sizes would create environmental management problems.

4.3 COMMUNITY INVOLVEMENT IN THE PLANNING PROCESS

The process of preparing a local environmental action plan in Block L Mbezi Beach provided a number of lessons about methods of involving communities in the processes of settlement upgrading and environmental management planning. The main lessons learned are as follows:

1. The major weakness observed in the local environmental action planning process was the identification and prioritisation of the most important environmental issues. This weakness has been attributed to the fact that the problem of lack of land ownership in the settlement is so great that it overrides all other issues in community discussions. The initial phase of environmental planning requires the careful screening of a broad range of issues that fit under the environmental umbrella. When there is one overriding problem, like lack of land tenure, it makes the screening process difficult.

2. The process of prioritising the most important environmental problem is not an easy matter for the community. It requires a long process of awareness creation in order for the residents to understand the diverse set of environmental issues. In this study, it took time for the residents to understand issues such as ground water pollution, on-line water supply contamination and wetland conservation. However, once they are able to compare the environmental problems and their costs in terms of environmental damage, they can easily set priorities.

3. The process of ranking the actions necessary to improve environmental management services and sanitation appeared to be influenced by the following factors:

- Compatibility of the action with the programme of formalising the status of the settlement;
- The health risks associated with identified environmental problems, such as lack of drainage and sewerage; and
- An analysis of costs and benefits; eg. activities with direct income generation potential, like mushroom cultivation and biogas production, were the preferred waste recycling or re-use options.

4. High priority in the Local Environmental Action Plan was given to the formalisation of the settlement because the problem of lack of land tenure creates a sense of insecurity, which discourages investment in both business and environmental infrastructure. It is also a strong unifying factor in the community and the main reason for the formation of the Block L Mbezi Beach Association.

5. Members of the private sector in the community, motivated by the economic opportunities offered by the provision of sanitation services, are eager to invest in small-scale wastewater and solid waste disposal businesses, and in waste re-use technologies. Involving the private sector as stakeholders in the environmental management and planning process can provide fruitful solutions to the provision of environmental management services.

5. RECOMMENDATIONS

5.1 INTRODUCTION

The final section of the report puts forward some recommendations which emerge from the findings of the study. The recommendations, which were discussed at the national consultative workshop held at the end of the study, are divided into two categories: those pertaining specifically to Block L Mbezi Beach and those related to the future upgrading of peri-urban settlements in general.

5.2 BLOCK L MBEZI BEACH

It is recommended that the ongoing negotiations between the Ministry of Lands and Human Settlements Development (MLHSD), the Dar es Salaam City Commission (DCC) and the Block L Mbezi Beach community, to formalise planning of the settlement, should take into consideration the issues and problems which emerged from the study. In particular, it is recommended that:

1. All parties should commit themselves to the implementation of the Local Environmental Action Plan prepared in the course of the research and initiatives should be taken to assist the community to play its part in the implementation process.
2. The size of the plots allocated to residents should be sufficiently large to enable the residents to continue their agricultural activities and to accommodate on-site sanitation and waste recycling systems for use in urban agriculture.
3. Means should be found of revising or circumventing the regulations and by-laws relating to urban agriculture, in order to enable residents to continue their agricultural activities.
4. The community should aim to integrate urban agriculture and community waste management systems, as articulated in the Local Environmental Action Plan.

5.3 FUTURE UPGRADING OF PERI-URBAN SETTLEMENTS

It is recommended that DCC, MLHSD and other relevant actors take note of the policy implications which have emerged from the study when considering the upgrading of other peri-urban and/or low-income settlements, in order to promote effective policies and actions in relation to such upgrading. In particular, it is recommended that:

1. Central and local government authorities and other actors should change their perception of urban poverty. Urban poverty should be defined in terms not only of household income but also of the quality of the environment. It should thus include:

- Lack of environmental management services, which results in the accumulation of stinking garbage, poor drainage and frequent floods;
- Poor sanitation infrastructure, which results in pollution and a high incidence of water-borne diseases; and
- Inadequate road network and drainage.

Tackling the state of the environment and poverty together is essential, since there is a strong causal relationship between them (Anzorena et al, 1998; World Bank, 1999).

2. The process of up-grading peri-urban settlements should be undertaken in such a way as to improve the residents' means of livelihood, in order to alleviate poverty (see also recommendations 5 and 7 below).

3. Central and local government authorities and other actors should recognise the importance of land tenure in relation to urban environmental planning and management. The first step in the upgrading process should be to recognise the legal status of the community and the land tenure rights of individual residents. This will not only facilitate the environmental upgrading process, but also help to alleviate poverty (Hapham and Tanner, 1995; Satterthwaite, 1999). More specifically, it will:

- Motivate the residents to take action to improve their environment and invest time and money in so doing;
- Assist the municipal authorities to control and regulate development and environmental management in peri-urban settlements;
- Give people a sense of security, by reducing the risks of eviction;
- Increase the value of household assets (eg. land and buildings) and thus the possibility of obtaining credit from banks;
- Encourage private sector investment in environmental infrastructure and public services, such as sewerage, safe water supply, waste collection and public transport;
- Attract employment-creating investment within the community.

4. The formalisation and upgrading of settlements should be done without evicting or displacing those households currently living in the area.

5. The important role of urban agriculture, both as a means of livelihood and as a way of utilising organic waste, should be recognised. Municipal authorities should harness the potential environmental benefits of peri-urban agriculture by integrating it into urban environmental management and poverty alleviation initiatives (Asomani-Boetang and Haight, 1995). It is particularly important that plot sizes be sufficiently large to accommodate agricultural activities.

6. Land allocation and urban environmental planning should be done in a way that accommodates on-site treatment and recycling of organic waste for agricultural use. The use of waste in urban and peri-urban agriculture should be seen as an integral part of the municipal waste management strategy. Future residential plots should, therefore, be large enough to provide space for household composting and intensive agricultural activities.

7. The provision of environmental management services should be combined with income-generating activities, in order to alleviate poverty. This can be done both through activities related directly to waste management, such as recycling, or indirectly, through programmes that create community-based enterprises that enable household members simultaneously to earn incomes and to obtain essentials, such as clean water, food, construction materials, and health care.
8. Urban planning regulations and by-laws should take account of the need to vary planning policies, especially with regard to urban agriculture and waste management systems, to suit the specific environmental conditions of individual settlements.
9. More research should be done to find appropriate on-site sanitation systems that can be adapted for use in different kinds of sites. Special consideration should be given to settlements built in flood prone areas that have no conventional planned sanitation system.
10. The existing urban planning regulations and by-laws should be reviewed in the light of recommendations 1-9 above. It was suggested that this could be done as part of the present attempt to institutionalise the Environmental Planning and Management (EPM) process in Dar es Salaam (Ndunguru, personal communication).

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APPENDIX 1

LOCAL ENVIRONMENTAL ACTION PLAN FOR BLOCK L MBEZI BEACH COMMUNITY

2 July 1999

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1. BACKGROUND INFORMATION

Tanzania is taking concerted efforts to alleviate environmental concerns with a view to achieve sustainable development in both the rural and urban settlements. The National Environmental Policy which has been developed as result of Tanzania's commitment to implement Agenda 21 on sustainable development and environment, provides a framework for bringing environmental considerations in the main stream of decision making. The policy seeks to improve environmental condition in urban settlements such that the may live in safe, productive and aesthetically pleasant neighbourhood or surroundings; to raise the environmental awareness; to promote individual and community participation planning and decision making in matters related to their environment. It is in this regard that residents of the Block – L Mbezi Beach community were mobilised to develop a “Local Environmental Action Plan” for their community.

Block – L Mbezi Beach community is an unplanned peri-urban settlement with no proper constructed roads, drainage, and sewerage system and does not get environmental management services like solid and liquid waste collection and disposal services. The community residents have been making efforts to have the settlement upgraded to planned and serviced settlement under the Dar es Salaam Municipality. These efforts are inline with Sustainable Dar es Salaam Programme (SDP) whose among other objectives is to promote or upgrade unserviced settlement in partnership with Community Based Organisations (CBOs), private and public sectors.

The purpose of this action plan is to provide the Block – L Mbezi Beach community with some guidelines from which to develop a local, contextually area specific environmental strategy. The effective implementation of the actions articulated in this strategy should result in safe, health and aesthetically attractive neighbourhood condition. The actions proposed are demand based and will facilitate the mobilisation of community participation and interventions in solving the environmental problems facing them.

2. ACTION PLAN GOALS AND OBJECTIVES

- (a) To integrate the community environmental concerns into the environmental planning and management process of the Dar es Salaam Municipality.
- (b) To mobilise the community residents and other stakeholders to actively participate in the processes of planning and management of environmental issues.
- (c) To promote environmental awareness of the residents in matters related to their environment, as means of enhancing the quality of life.
- (d) To prepare a long term plan to address major environmental concerns.

3. ENVIRONMENTAL PRIORITIES AND NEEDS

The following is the list of environmental priorities and needs which have been identified in Block-L Mbezi Beach Community. The arrangement is according to the priority issues. They are as follows:

1. Lack of formal urban planning of the community and land tenure. The settlement is unplanned and residents of this community don't feel secure in their households or being members of a legally recognised urban settlement. The lack of land tenure creates a sense of insecurity, as the status of their residence is uncertain. The condition of uncertainty to residency does not create good conditions for the people in the community to devote their resources in improving environmental infrastructure or services especially those focussing at neighbourhood living conditions. When given the security of land tenure and clear legal bases for land ownership, the residents of Mbezi Block –L community will be motivated to invest their energy and resources in environmental services and infrastructure.
2. Lack of necessary infrastructure for a healthy environment. This includes lack of infrastructure like road network in the settlement. Without proper roads, different households cannot receive environmental services like liquid and solid waste collection. It implies that all the waste finds a sink in the community creating pollution problems and health risks.
3. Lack of drainage to control storm and runoff water. The storm water has an impact of destroying community built roads and threatening the destruction of some property. The water drainage system for Bagamoyo Road which forms a boundary of this settlement, has few water outlets, this results in flooding in some parts the settlement during the rain seasons. For safety of the residents of the settlement, there is a need to redesign the drainage system to have more water outlets. In addition lack of drainage for runoff water creates pools on the roads, which become breeding ground for disease vectors.
4. Online contamination of piped water supply by faecal or domestic sewage material. Due to lack of formal urban planning or housing, the water pipes are not laid on designated land, and some houses are built next to existing water pipes. There is frequent cutting of pipes and uncontrolled connections. Under this condition there is high risk of contamination of piped water, posing a great health risk to the population especially during the rain seasons. Also there is a great need to have centralised water supply network in the community to avoid individuals obtaining water haphazardly from the main pipe servicing the beach hotels.
5. Lack of proper disposal for industrial waste in the neighbourhood of the community. The sewage and runoff water from the nearby factories is disposed off in the community with surface waters; this is of great health concern to the community dwellers. These factories have no proper sewerage and drainage system and therefore, some chemical pollutants can find the way into the soils and ground water in the community. This pollution problem, poses health and environmental risks to the community dwellers.
6. Lack of proper sanitation infrastructure such as latrines in certain households. Landowners, who have not built permanent houses in their plots, have no toilets. The occupants of the plots dispose faecal waste in the open; this poses a health risk to the population.

7. Lack of planned disposal of faecal or domestic sewage in the community. Some households direct the sewage from the overflowing septic tanks and latrines into the roads. This is a source of conflict in the community and poses a health risk to the population. Most households have no proper on-plot domestic sewage treatment and disposal system. This is likely to be a source of ground water pollution, given the high water table in the settlement.
8. Emerging slums in the community. Some landowners are selling small plot of land to developers to construct houses. This tendency is likely to lead into the development of slum community if it continues unchecked.
9. Disposal of animal manure. Most of the residents in this community practice urban agriculture including animal husbandry as means of self-employment and income generation activities. The community exports vegetables and dairy products to the other communities. The manure is recycled and used as fertiliser in the gardens in the community. For households with small plots of land, this resource sometimes is in excess and creating bad smell.
10. Air pollution from industries. The community experiences dust emissions from Wazo Hill Cement factory. This pollution problem is a health concern to some residents.
11. Reclamation of the wetland bordering the settlement. The wetland bordering the settlement is a natural wastewater treatment system, which protects the coastal water from the pollutants coming from urban settlements. This is also a natural green area, which acts as lungs of the city to provide clean air. Allowing developers into the wetland can also result in flooding of the low-lying parts of the settlement, the development is going to interfere with the flow of surface water.
12. Use of dynamites in stone quarries. The current use of dynamites in stone queries in the neighbourhood of the settlement, is an environmental concern because it is likely to affect the buildings or other built property and endangering the lives of community inhabitants.

4. WHAT THE COMMUNITY CAN DO (AND WHAT HAS BEEN DONE) TO SOLVE THE PROBLEMS

1. The community residents have organised themselves into a CBO and registered with the Ministry of Home Affairs as Block-L Mbezi Beach Development Association with a registration number 8960. Among the community goals and objectives is to promote the improvement, protection and preservation of the environment of Block-L Mbezi Beach and the adjacent areas.
2. The community leaders have approached the Dar es Salaam City Commission and Ministry of Land and Human Settlements Development, to have the community under the Dar es Salaam City land planning and facilitate for the community members to secure the land tenure which they did not have. Through these efforts a draft Town planning (T.P) map has been prepared.

3. The community should promote the culture of planting trees to preserve the settlement as a green belt, and environmentally attractive residential area.
4. The community should designate land for centralised water supply and drainage systems to avoid environmental problems like online contamination of piped water and runoff/storm water related problems. DAWASA should be consulted to facility this undertaking.
5. The community needs to secure land for public services like schools, hospital, burial place or cemetery and open spaces for recreation.
6. Examine the needs of farmers in the community and support them to acquire safe waste reuse techniques in urban agriculture, reduce or remove high application of chemical fertilisers in the community.
7. Mobilise the community effort to harvest the rain and ground water for domestic and irrigation use respectively. Effort is made to promote rational use of water as an environmental protection measure.
8. Promote educational campaigns for (a) environmental and societal benefits of waste reduction, reuse and recycling (especially those with economic incentives such as use in agricultural solid waste; for mushroom cultivation), (b) composting options of organic fraction of waste domestic waste, including animal manure, (c) reducing the stigma attached to waste disposal and collection.
9. Study waste streams to design waste recovery and recycling options; identify markets for recyclables; and problems of existing waste disposal and management practices to decide whether there may be a facilitative or regulatory role for the municipal authority.
10. Support separation of waste at source, recovery and trading networks of non-organic wastes. Emphasis should be given to hazardous waste such as batteries; metals and plastics, which can create environmental pollution and health problems when, disposed off haphazardly in the community environment.
11. Efforts should be made to promote the protection and conservation of the wetland leading to Kunduchi Creek. This is a natural green ecosystem that provides clean air. Allowing developers into the wetland can result in flooding of the low-lying parts of the settlement.

5. INSTITUTIONS WHICH CAN PROVIDE SUPPORT IN IMPLEMENTATION OF THE ACTION PLAN

Block L Mbezi Beach Association
 Dar es Salaam City Commission/Council (DCC)
 Ministry of Land and Human Settlements Development
 The Office of Vice President (Department of Environment)
 Dar es Salaam Water Supply and Sanitation Authority (DAWASA)
 National Environment Management Council (NEMC)

Sustainable Dar es Salaam Programme (SDP)
Donor Communities
Relevant NGOs
Academic Institutions of High Learning

6. SUPPORT NEEDED IN IMPLEMENTATION OF THE ACTION PLAN

- (i) Incorporating the Block – L Mbezi Beach in the Dar es Salaam Municipal plan and securing land tenure or legal land ownership to residents.
- (ii) Financial supports from relevant institutions, for development of community infrastructure like roads and drainage system within the community.
- (iii) Promoting intensive urban agriculture to create a market for processed organic waste in organic farming. There is a need for technical support to harvest ground water for irrigation and thus allowing cultivation throughout the year.
- (iv) Technical support to promote appropriate, on-plot sanitation as an alternative to centralised sewerage system. On-plot sanitation refers to types of sanitation that are contained within the plot occupied by a dwelling. Commonly, on-plot sanitation is equivalent to 'household latrine', but also includes facilities shared by several households living together on the same plot - a situation found in many developing countries.
- (v) Public education on environmental awareness in matters related to their environment, as means of enhancing the quality of life.
- (vi) Technical support to promote appropriate, on-plot waste treatment, recycling and reuse techniques. This should include processing of organic waste to obtain valuable products like fertiliser, biogas and substrates for cultivation of mushrooms.
- (vii) Technical support to develop low cost, environmentally friendly community sanitation infrastructure like duckweed ponds for treatment of domestic waste and slurry from animal sheds. This can treat the liquid waste and provide high protein animal feed which can be used in the community or sold to animal feed producing industries.

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APPROVED AND SIGNED

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DATE

APPENDIX 2

**LIST OF PARTICIPANTS TO NATIONAL CONSULTATIVE WORKSHOP
ON MANAGEMENT OF ENVIRONMENTAL SERVICES IN PERI-URBAN
COMMUNITIES: LINKAGE TO POVERTY ALLEVIATION
12 JULY 1999**

1. Mr F.K. Malekela, Community Leader, Mbezi Block L Association
2. Mr Raphael Korosso, Community Leader, Mbezi Block L Association
3. Mr Alphonse Nsenduke, Ward Executive Officer, Tabata
4. Mr Alfred Kahinda, Mtaa Secretary, Mbezi Block L Association
5. Mrs Anna Kayombo, Member, Mbezi Block L Association
6. Mr Christopher Swai, Chairman, Mbezi Block L Association
7. Mr Nyanza J. Maselle, Secretary General, Tabata Development Fund
8. Ms Suzan Kiango, Project Co-ordinator, Urban Vegetable Promotion Project, Dar es Salaam City Commission, P.O. Box 31311, Dar es Salaam.
9. Prof. I.F. Shao, Director, Institute of Development Studies, P.O. Box 35169, University of Dar es Salaam
10. Mr James Mpinga, Journalist, The East African Newspaper
11. Mr Bakar J. Mnunduma, Research Fellow, Institute of Housing Studies, University College of Lands and Architectural Studies, P.O. Box 35176, Dar es Salaam
12. Mr.C.T. Kimaro, Research Officer, Association of Local Authorities in Tanzania, P.O. Box 7912, Dar es Salaam
13. Dr M.S. Mbilima, Medical Doctor (Public Health), University of Dar es Salaam, P.O. Box 35074, Dar es Salaam
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16. Mr Joseph Bandu, freelance journalist, P.O. Box 12399, Dar es Salaam
17. Ms Tunua Thrash, Researcher, Tabata Development Fund
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30. Prof. Lusuga Kironde, Registrar, Institute of Housing Studies, University College of Lands and Architectural Studies, P. O. Box 35176, Dar es Salaam
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32. Mr Salim Said Salim, Journalist, Zanzibar
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37. Mr C. Mwankenja, Journalist, The Guardian
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40. Mr George Matovu, Regional Director, Municipal Development Programme, Harare
41. Ms Clare Lwehabura, Project Officer, Friedrichs Ebert Stiftung (FES), P.O. Box 4472, Dar es Salaam

