

Urban Agriculture in Dar es Salaam¹

by

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Abstract

This paper provides a self-assessment of an IDRC project in Tanzania entitled “Urban agriculture, environmental planning and management process”. The author begins by describing how the project was developed and outlining the five general objectives of the project. He provides a brief summary of the local political context in which the project was situated to explain some of the constraints within the project.

The author assesses the project’s achievements in each of the eight impact areas. Of particular note is the human resource development where the project accounts for the training of 25 persons in their research team, the development of teaching materials at the university, and the indirect training of a number of graduate and undergraduate students on various aspects of urban farming. The author also praises the multi-disciplinary approach of the team which contributed to a comprehensive treatment of the issues addressed by the research project. While the author provides fairly positive reports on all eight areas, he admits that the project did not apply strong gender analysis and that future projects would need to incorporate more gender analysis. He includes an overall evaluation of the impacts, discussing in particular the role it has played in sensitizing people around Dar es Salaam, calling attention to the significant contributions that UA makes to the household economy. Drawing from the study results he argues for the use of solid waste recycling through UA and highlights the potential for future partnerships between urban agriculture and waste management.

Introduction

The project “Urban agriculture, environmental planning and management process” in Dar es Salaam started in April 1994. It grew out of discussions in 1993 between IDRC senior program specialist Luc Mougeot and Dr. Eugen Eigen, director of the Sustainable Cities Program (SCP) at the United Nations Centre for Human Settlements.

The project discussions recognized the significance of the urban agriculture (UA) industry. By the 1980s, urban agriculture was gaining currency as a research topic among social scientists, especially in developing countries, and the trend accelerated in the 1990s. Increasingly, UA was seen as contributing significantly to the economies of many developing country cities. Numerous actors were involved in the practice of UA including men, women, children, the elderly, professionals, educators, administrators, and the majority of the unemployed and the urban poor. In addition, it was recognized that UA was contributing in significant ways to the survival strategies of the urban poor. Quite surprisingly, UA was found to enhance urban food security. Moreover, it had become clear that UA, well practiced and managed, is a potential management tool in dealing with solid and liquid wastes and other related urban environmental problems in both the developing and developed world.

Genesis of the project

The project grew directly out of the international workshop hosted by IDRC in Ottawa in 1993 (Mougeot and Masse 1993). This workshop identified several areas of research that had not yet been addressed -- given the newness of the research agenda and the growing need to build more sustainable cities. The workshop also contributed to globalizing the concept of UA, which at the time was little known in the academic literature. IDRC had pioneered research in UA in the early 1980s, especially in Asian countries.

After the Ottawa workshop in 1993, it became clear that UNCHS found UA to be of considerable interest. It was obvious that in order to make the idea of sustainable cities understood, a global initiative was required to educate people about balancing environment and development efforts. UA was a fitting topic within this context. At about this time, Dar es Salaam had been chosen as one of ten cities to benefit from the Sustainable Cities Program (SCP), which would initiate several development strategies to exploit more efficiently the resources available within the Dar es Salaam region. Several studies on urban agriculture had already been carried out in Tanzania and Dar es Salaam featured prominently. Any further research on UA would be a sequel to earlier, or on-going, research. Dar es Salaam was regarded as a reasonable choice for further research on UA, given that UA was quite prevalent there and some documentation of activities had already been achieved.

UA in Dar es Salaam was taking place in an environment that could pose several problems. Air and water pollution, although not as serious as in developed countries, does occur in the city.

Crops irrigated with polluted water or exposed to polluted air are a potential health hazard. Health problems are increased if animals eat grass that has been contaminated.

With regard to constraints to UA in Dar es Salaam, these include: water shortage; poor land tenure; pollution from industrial wastes emanating from food processing industrial wastes, petroleum wastes, pesticide wastes, insecticides and fungicides; and numerous problems of collecting and disposing of solid and liquid wastes from households (Kishimba 1993; Mashauri 1989). Wastes are being dumped haphazardly, marring the city's aesthetics and increasing health dangers to urban dwellers, especially the poor living in unplanned areas. More research on UA was needed to identify suitable areas for urban farming and justify greater private investments and environmental pollution controls.

In 1992, a consultative workshop on urban environmental issues, held under the auspices of the Sustainable Dar es Salaam Project, established that less than 5 percent of the city's solid wastes were being collected daily and dumped crudely. The consequences have been:

- Drains and sewers are blocked and flooding escalates during the rainy season,
- Improper solid waste incineration causes air pollution from toxic gases,
- Uncollected garbage in residential and business areas creates irritating odours and reduces city beauty, and
- Waste accumulates in piles on streets, especially from livestock reared in residential areas. This creates breeding areas for diseases, insects and rodents. At the same time, opportunities for small-scale and even large-scale composting and waste recycling remain untapped.

The SDP consultative workshop also established that the city lacked the capacity to collect the wastes. Indeed, there had been a failure to create an integrated approach to collecting, treating, transporting, and disposing city wastes in an environmentally sound manner.

Dar es Salaam was growing at 4.7 percent p.a. (Baruti et al. 1992), a rapid growth rate similar to that of other cities in the developing world. This meant an increase in urban demand for land, water, fuel, food and other largely rural-based resources. The growing demand for these resources in Dar es Salaam is aggravating environmental stress, undermining the productivity of human-made capital, and intensifying social conflicts within the city, in the immediate hinterland, and beyond.

As cities grow, their food supply systems become stressed. The food supply system in Dar es Salaam has been constrained by:

- the increase in population,
- stagnating rural production of both cash crops and food crops,
- poor and inefficient transportation systems that have constrained timely and affordable transfer of foods from rural areas to urban centres,

- constrained food imports owing to lack of foreign reserves and local purchasing power, and
- poor performance of the national economy characterized by declining household incomes (worsened by delayed payment of salaries), negative impacts of structural adjustment programs, urban food shortages, malnutrition, illness, unemployment and poor urban governance.

The 1992 workshop with SDP also addressed the issue of managing open spaces, recreational areas, hazard lands, and green belts for promotion of urban agriculture. Strategies were to be drawn up to address the loss of open spaces from people building on these sites. Using urban agriculture as a land management tool would go a long way toward integrating hazard land management with the goal of maximizing UA agriculture potential.

The research project was intended to be action oriented and to generate information that will show the relationship between UA and management strategies for open spaces, recreational areas, green belts and hazard land in Dar es Salaam. These issues were also emphasized in a mini-workshop on UA in Dar es Salaam, sponsored by SDP in November 1993. The wide array of experts and UA practitioners provided valuable input for the proposal that culminated in the IDRC-supported research project (after obtaining support and guidance from Chris Radford, then technical advisor to the SDP).

General objectives of the research project

To summarize from the foregoing, there was growing interest in building on existing research findings with a view to integrating UA activities and the city's problem of managing solid and liquid wastes. Also central to the project was the need to establish the socio-economic significance of supporting UA in Dar es Salaam and elsewhere in the country.

Overall, the objective of the Dar es Salaam UA project was to collect baseline data on UA that would feed into the urban environmental planning and management process of the Sustainable Dar es Salaam Project (funded by UNDP and executed by the UNCHS under the Sustainable Cities Program). It was expected that such information would support action-oriented research, which in turn would contribute to policy formulation and integration of UA activities with urban environmental management at the levels of both city and central government.

Specific objectives of the project

Five specific objective areas were central to the research project:

1. Documenting the scale and extent of UA, its role in the urban economy and food security, and its importance vis-a-vis subsistence consumption, health, incomes and employment.
2. Detailing the interaction between urban agriculture and the environment to establish negative and positive impacts of UA activities on food production.

3. Identifying and describing practitioners in UA as producers and managers of environmental resources and the constraints they face.
4. Identifying and documenting available instruments of intervention.
5. Identifying, documenting, and describing opportunities for UA through appropriate land and waste management.

Project duration and constraints

The project was originally scheduled to last two years (1994-1996). However, several problems arose, including delays caused by the closure of the bank where the project had its account. Funds were withheld until a new bank arrangement was in place. Other problems included frequent changes within the Dar es Salaam city council with whom SDP was working. In fact, the city council was the owner of the project. It was responsible for executing the project in collaboration with SDP. Frequent changes of officers in city council during that period affected to varying degrees the execution of SDP and the UA project.

The total disbanding of the city council in 1995, and institution of a City Commission instead, meant that certain aspects of the project had to be started anew. SDP had to brief the new people about what it stood for, what processes were involved, the role of working groups within SDP, the relevance of the information gathered by the working groups, and the place of UA in city planning. Delays occurred in carrying out fieldwork and in conducting seminars and workshops where SDP, city authorities, and the public could discuss preliminary findings of the UA research. Special political and bureaucratic arrangements were needed to create an appropriate environment for sensitizing people about the involvement of stakeholders, all of which took extra time.

In the midst of these delays, the urban environment was changing rapidly. The city saw population increases, housing and road construction, and impacts of migration -- increases in petty trading and erection of kiosks in the city centre, invasion of open spaces and road reserves, and expansion of roads and demolition of built-up structures (e.g. along Morogoro road and the New Bagamoyo Road). Some of the data gathered at the project outset was now outdated and updates were needed to meet the planning purposes of SDP. In the end two project extensions had to be requested before the project could be wound up and submit its final report.

Relevant areas of impact

Institutional Capacity Strengthening

The project contributed significantly to institutional capacity strengthening in both the University College of Lands and Architectural Sciences (UCLAS) -- the former Ardhi Institute -- , and the University of Dar es Salaam. Project research staff benefitted from capacity building. In addition, institutional capacity building at UCLAS and UDSM came in the form of office equipment and materials. These included a desktop computer and laser printer, four laptop computers, and two printers to support the laptops.

The office equipment and materials have enhanced the research capacity of the project researchers. In particular, the desktop computer and laser printer represented major acquisitions by the department of geography at the University of Dar es Salaam. The software provided is supporting data processing in the department. The computers have also facilitated the installation of electronic mail software, which has strengthened capacity in modern communication.

The chemistry department at UDSM acquired a potable water analysis kit and chemicals that is an invaluable addition to the departments' stock of such equipment.

Apart from the acquisition of equipment and materials, the project coordinator created a mini-collection on UA materials in his office. If a small building could be acquired to accommodate the materials, it will provide space for reading and could be the beginning of a small research library on UA.

Human Resource Development

Having prepared the questionnaire for the socio-economic surveys, the research team trained nine women and 16 men as interviewers. The trainees were selected from within the university, UCLAS, district agricultural offices, and from among UA farmers. The training focussed on how to administer different kinds of questions in a personal interview format, how to approach farmers, and appropriate ways of recording information.

Two members of the geography department at University of Dar es Salaam who have done research on UA developed teaching materials to incorporate UA knowledge into the department's programs. Therefore, since the 1994/95 academic year, the department has been offering material on urban agriculture to second year students in their compulsory field course. In the 1995/96 academic year, 66 students participated. In 1996/97, 80 students went through the field course. In 1997/98, another 80 students participated. These students must submit a written project on the role and significance of urban agriculture as a feature of the informal sector in cities of developing countries. During the 1996/97 field course, UA practices were studied in Kibaha town, the capital of Coast Region, and in 1997/98 students studied the Mbagalla sector of Dar es Salaam.

Although the project did not fund training for undergraduates and graduates, it did provide indirect training. Thus, the project contributed in a modest way to human resource development in the sense that some training took place. This training included:

- An undergraduate geography student's independent study on solid waste management at the household and city level. She was supervised by the project coordinator, Dr. Sawio. The focus of her work was on solid waste collection, sorting, composting, and recycling for use in urban agriculture at the household and city level.
- Field assistants received one week of training as questionnaire administrators.
- A Japanese graduate student consulted with the UA project coordinator and wrote a term paper on solid waste management in Dar es Salaam and UA practice.
- A graduate student from Sokoine University of Agriculture benefitted from the project through consultation and guidance on literature gathering. She completed a study on extension services and urban agriculture development in Dar es Salaam.
- Another graduate student attached to the urban vegetable promotion project (GTZ), completed an MA in Development and Environment at the School of Oriental and African Studies, University of London, UK. She also benefitted from consulting with the project coordinator and accessed some of the literature in the project collection.
- A graduate student from the Agricultural University of Norway was partially supervised by the coordinator and completed an MSc dissertation on urban farming in Dar es Salaam: some socio-economic aspects.

Effectiveness of local partnerships

Effective local partnerships were established throughout the life of the project. The project team worked closely with the Sustainable Dar es Salaam Project (SDP) urban agriculture working group, coordinated by Ms. A. Mtani. Data gathered by the project was directed to the SDP. The team assembled information to inform SDP and the city council about the significance of UA in the city economy. Local workshops were held with SDP in 1993, 1995, and 1997 to disseminate relevant information on UA and the environmental planning process. Through the project coordinator and the SDP UA working group, the research team also collaborated with the Regional Agricultural Development Office (RALDO) to study UA and suggest viable action plans for promoting UA.

The project team engaged the Dar es Salaam city council (later to become city commission) in consultations and meetings with regard to methods of practicing more sustainable UA. A significant achievement in this area was collaboration between the project, SDP, RALDO and the

city council in obtaining support (worth about US\$500,000) from STOAS International² and the national income generating program (NIGP) to rehabilitate the urban horticultural gardens in Dar es Salaam. Notable progress has been made in reviving the gardens. Although there are problems of drought, water shortage, theft and the like, these gardens are becoming vehicles for disseminating knowledge, seeds, fruits, techniques, and strategies for developing UA in Dar es Salaam.

The project has made links with other academic institutions such as the department of continuing education at the Sokoine University of Agriculture to explore means of developing UA in Tanzanian cities. One effort under way is to develop model UA projects for replication and teaching elsewhere. Other links have been made with research projects within the University of Dar es Salaam, some NGOs (e.g. the Coastal Dairy Farmers' Association) and the energy production project TAKAGAS.

Collaboration with the Natural Resource Institute through their pilot projects in Mbutu and Buguruni consisted of exchange of ideas, participation in workshops, and visits to farmers. Finally, the project team conducted field visits and exchanged views and literature with the urban vegetable promotion project (GTZ) on subjects of UA, extension services, and integrated pest management strategies.

Gender analysis

The project results show that both men and women, boys and girls, the poor and the rich are involved in UA in Dar es Salaam. Although the project did not apply strong gender analysis (such as using a gender-oriented methodology), other studies conducted in Dar es Salaam suggest that female vegetable growers benefit less from their activities than do male growers.

Further examination of the project findings reveals that gender issues did arise and some gender analysis did, in fact, take place. Gender analysis is indicated by:

- evidence from the literature review showing that men and women engage in UA;
- specific questions in the socio-economic surveys, especially on farming activities (farm preparation, sowing, weeding, harvesting, applying fertilizers, etc.) that alluded to gender relations;
- inclusion in the research team of two women and four men;
- portrayal of the distribution of UA actors in the study areas along gender lines;
- similarly, demographic characteristics of UA actors including heads of households, and household sizes were presented on a gender basis; and
- last, but not least, interviewers included men and women, and efforts were made during

²STOAS, Agriprojects Foundation Department of Sub-Sahara Africa. A Foundation for the Development of Agriculture, Education and Training. P.O. Box 33536 Dar es Salaam. Tel. 255-51-151608 Fax: 255-51-46775.

the administration of questionnaires to interview both male and female UA practitioners.

Added value of multidisciplinary approach

The project research team³ was composed of different disciplines. From the University of Dar es Salaam came a geographer, urban and regional planner (a social scientist) and a scientist specializing in chemistry and environmental issues. From UCLAS, the project benefitted from the experiences of four urban planners, most of them combining skills in other social science areas, especially geography, human settlement planning, aerial photo interpretation, GIS and remote sensing, policy analysis, and architecture.

Therefore, the project had at its disposal different research methods, including aerial photography interpretation, digital data analysis for mapping purposes and understanding processes on land, and socio-economic data analysis to document characteristics of the UA actors and economic aspects. Chemical analysis for heavy metals in water, soil, and crop samples added an important focus to the project. Equally important was the documentation of the legal instruments of intervention (by-laws) for regulating UA.

All of these disciplines contributed to a comprehensive treatment of the issues addressed by the project research. The multidisciplinary approach facilitated:

- the designing of a broad-based questionnaire to gather sufficient information,
- use of a broad spectrum of interviewers with different skills and experiences to collect survey data, and
- documentation of impacts and opportunities arising from UA in Dar es Salaam.

Analysis of water, soil, and crop samples

In order to understand the impact of pollution in irrigation waters in Dar es Salaam as well as the effects of pollution on some crops, water, soil, and crop samples were collected at selected sites along the Msimbazi Valley. In this methodological procedure, the following parameters were analyzed.

Water

Seventeen parameters were analyzed, namely:

³Dr. C. J. Sawio, project coordinator, geography department, University of Dar es Salaam; Dr. M. A. Kishimba, chemistry department, University of Dar es Salaam; Mr. A. Kyessi, urban planner, settlement analyst, GIS and aerial photo specialist, UCLAS; Mr. B. B. Majani, urban planner, UCLAS; and Ms. A. Mwaiselage, architect and urban planner, UCLAS. In addition, Ms A. Mtani, the representative of the urban agriculture working group in SDP, was closely linked with the research team.

Heavy metals:

Copper (Cu); chromium (Cr); lead (Pb); cadmium (Cd); and zinc (Zn).

Other parameters:

Temperature; pH; conductivity; total dissolved solids (TDS); dissolved oxygen (DO); total nitrate (TNO₃⁻); and phosphate (PO₄²⁻).

Sediments:

In the sediments, only heavy metals (the same metals noted above) were analyzed, for the obvious reason that these are the only serious pollutants.

Soil

As was the case for sediments, only heavy metals (copper, chromium, lead, cadmium, and zinc) were analyzed in soil since they constitute the only serious pollutants.

Methodology for Water Sampling

Sample Collection

Water samples were collected in new, polyethylene one-litre bottles. The bottles were cleaned with detergent, rinsed thoroughly with distilled water, then soaked in a solution of nitric acid to remove any trace metals on the walls of the container. Finally, the bottles were again rinsed with distilled water before being used for the actual sampling. During the sampling, a can was immersed well below the surface of the water to avoid collecting surface water, which is never representative of the water being contaminated by heavy metals. The can and bottles were rinsed a few times before actually collecting the samples for analysis. Three samples were taken from different points at a sampling site.

For the sediment and soil sampling, new polyethylene stoppered jars were similarly treated.

Analytical procedure

Three measures were taken from the water samples: temperature, pH, and conductance. Concentrations of metals were determined using both a Hach DR 2000 spectrophotometer and a Perkin Elmer 2380 atomic absorption spectrophotometer. The latter procedure avoids changes owing to physical, chemical, or biological factors that usually occur within several hours. After filtration on an acid-washed filter paper, the samples were acidified with Pro-Analysis (May and Baker, U.K.) nitric acid to a pH of 1.5. Conductivity, total dissolved solids (TDS), dissolved oxygen (DO), nitrate (NO₃⁻) and phosphate (PO₄²⁻) were determined using Hach DR 2000 spectrophotometer equipment.

Analysis of vegetables

Plants as a whole -- crops in this case -- take up heavy metals from the soil. If they are not carefully monitored, these metals end up in the human food chain. For example, vegetation growing at the roadside of the road may have lead levels of up to 50 ppm. But for vegetables

growing 150 m back from the road, the level of lead is normally two to three ppm. Contamination by inorganic lead usually occurs only on the outer surface of the plant and most of the contaminant can be removed by washing. But the effect of organic lead such as the alkyl lead derivatives like tetraethyl lead -- the compound used in leaded petrol -- is very different. Triethyl and diethyl lead have the same properties. They are taken up into the plant tissue and accumulate to levels that pose dangers to human health. The heavy metal cadmium is also taken up by plants. The rate of uptake depends on the concentration of the pollutant in the plant's vicinity.

After examining the irrigation waters, sediments, and soils in the Msimbazi Valley, efforts were directed toward determining whether the levels of heavy metals in vegetables grown in urban areas are within the recommended limits.

Methodology For Crops Analysis

Samples of cowpea (*Vigna unguiculata*) leaves, pumpkin (*Curcubita moschata*) leaves and African spinach (*Amaranthus sp.*) were collected from Kijitonyama, Mwenge, and Keko Bondeni. The collected samples were washed with distilled water to remove airborne pollutants. The inedible parts were removed and the specimens sliced and oven dried to constant weight at 60 degrees C. The samples were then ground and sieved through a 60 mm mesh, and subsequently dried and analyzed. The following heavy metal concentration was determined on a Perkin Elmer 2380 atomic absorption spectrophotometer: (1) Copper (Cu); (2) Lead (Pb); (3) Cadmium (Cd); and (4) Zinc (Zn).

Methodological and scientific advances

The methodological and scientific advances are reflected in the way data was gathered. Both secondary and primary data collection methods were employed. The extensive literature review added more historical perspectives about the practice of UA. Other significant research methods included the socio-economic survey using random and stratified sampling to include representative UA actors and aspects of UA; group discussions; participant observation and field reconnaissances, and sharing experiences and information among the working groups in SDP. Taken together, these methods enabled the research team to develop a broader understanding of UA and relationships with other environmental issues.

It is worth noting that map and aerial photo interpretation, including the use of digital data, enhanced mapping and data presentation. In-depth analysis of water, soil, sediments, and crops to determine levels of pollution and food contamination added an important empirical component to the research process.

Research utilization by non-research entities

The project generated information that has been used by the Sustainable Dar es Salaam Project as input into the strategic urban development plan (SUDP) for Dar es Salaam. A position paper on managing urban agriculture in Dar es Salaam has been produced. The paper incorporated some of the research findings and was discussed in a workshop designed by SDP to generate views on the preparation of the SUDP, which is meant to replace the 1979 master plan for Dar es Salaam. Many of the propositions and suggestions emanating from the UA project have been adopted. It is hoped that the SUDP for Dar es Salaam will clearly recognize UA as a legitimate urban land use and earmark areas for development of both urban and peri-urban agriculture.

The position paper noted above proposes a mixed land use strategy for UA that includes both food crops and livestock keeping. It recommends that livestock keeping be kept in the peri-urban zones where it is thriving. It is hoped that more project results will be utilized by urban decision makers (planners, urban economists, law enforcers, extension officers and others) to support and enhance UA in urban centres in Tanzania. This is feasible because nine other municipalities in Tanzania (Arusha, Moshi, Dodoma, Morogoro, Tanga, Tabora, Mbeya, Mwanza and Iringa) are prepared to replicate the SDP process.

Leverage of non-centre funds

With regard to fund leverage, it should be noted that from the beginning the project benefitted from UNCHS support to the SDP valued at CA\$171,600. Not all of this money accrued to the project since much of it was used to support the SDP working group on UA.

As pointed out earlier, collaboration between the project, SDP, RALDO and the city council to rehabilitate the horticultural gardens of Dar es Salaam through the STOAS/NIGP project generated about US\$500,000 for this task. The project started in 1994 and has now ended after both successes and failures. It is likely that the horticultural gardens will be managed commercially by interested individuals and groups on a cooperative basis.

Overall evaluation of impacts

The UA project in Dar es Salaam created institutional strengthening at the UDSM and UCLAS. The equipment, materials, and enhancement of research capacity among the researchers made a significant impact. The project has sensitized people around Dar es Salaam -- they realize that UA is no longer an issue that can be ignored and that urban plans must address the issue. This sensitization occurred through seminars, workshops, and meetings with UA operators and other stakeholders. More seminars and workshops are needed to generate and disseminate more knowledge on UA issues.

Results indicate that UA is contributing significantly to the household economy. UA is

generating jobs and over TZS50 million per year from UA produce. More income is realized through the sale of dairy products and highly valued horticultural products. UA makes use of local technology to produce food. The local government is interested in developing UA and nine municipalities are currently emulating SDP. There is a strong legal framework in the form of by-laws to regulate the practice of UA, although the majority of UA actors pay little attention to the by-laws. For instance, in Dar es Salaam only four head of cows can be kept and they must be on zero grazing. Yet, there is weakness in enforcing this by-law. The city governments should be more realistic and forceful in enforcing regulations to support UA.

Results of the study indicate that solid waste composting and recycling for UA use is possible. It can be developed in peri-urban areas and in such places as Vingunguti, Mtongani Kunduchi, and mining sites once the mining is exhausted.

Human resources development has taken place to some extent. However, it can be enhanced in the future if a UA-oriented curriculum is developed rigorously among participating institutions.

The multidisciplinary approach helped to discover more about the impact of UA on the environment through livestock keeping and pesticide use.

The potential to form partnerships exists, but on the whole there is a lack of commitment on the part of politicians and decision-makers as demonstrated by influential persons who simply disobey laws with impunity.

Although gender issues are important in UA research, this project did not adopt a strong gender approach at the outset. This shortcoming will be addressed in future undertakings.

Overall, the project produced high-quality results that document the dominant issues relating to UA in Dar es Salaam. This outcome is owing to broad data collection, in-depth analysis, and straightforward presentation of the results in maps, diagrams, tables, and figures.

Sub-ordination of the project to SDP: a policy formulating process

The aim of the project was to feed data into SDP while it continued to carry out its programs. From the start, this arrangement imposed a heavy hand on the research team, for there was an assumption that every bit of data must be submitted to the SDP. There was a general feeling that team members could be asked to move in directions that were not fully within the objectives of the research.

Notwithstanding budget and time constraints, there were constant demands that the project expand its area of study as the interests and views of SDP expanded. At one point, the research team had to change the design of the project in order to accommodate new demands. This added stress to the work of the research team and introduced potential delays. Since the SDP had to adjust to political events in the city administration and to government policy as a whole, the

project execution had to follow suit. In the end, this process meant waiting for certain political problems to be settled.

The research was action-oriented, an approach that at times led to demands for data before proper analysis was carried out. These pressures made it difficult to verify certain pieces of information that seemed to come from contradicting sources. However, the final result was positive in the sense that SDP assisted in getting the project completed through its assistance in funding and dissemination of initial results through seminars and workshops.

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