

# Potentials of Urban Horticulture for Poverty Reduction in Dar es Salaam: A Case of Kinondoni Municipal

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## Abstract

*A study to examine the contribution of urban agriculture to poverty reduction was conducted in Dar es Salaam, using Kinondoni Municipal as a case study. Specifically, the study intended to (i) identify types and quantity of vegetable grown in the study area (ii) establish the contribution of urban vegetable production to poverty reduction. Simple random and purposive sampling techniques were used to get a total of 59 respondents. Data were collected through questionnaires, semi structured interviews and checklists. Both qualitative and quantitative methods were used to analyze data. The results of the study show that, urban vegetable production contributed to the increase in income of vegetable producers (smallholder farmers) and on the side of non income poverty there is increase in quantity of vegetable production, increase in food security, as well as improvement in access and affordability of health and education services was registered. This study has established that there is significant contribution of urban vegetable production to poverty reduction, thus it can be concluded that there is huge potentials in using urban horticulture for poverty reduction. To make the urban horticulture activities sustainable, it is recommended that, there must be deliberate efforts in improving access to land by legally allocating specific areas for horticulture in the Municipal, improve urban extension services, and reduce price of agricultural inputs.*

## 1.0 Introduction

One of the major development problems facing the world today is growing phenomenon of poverty. It is estimated that over 1.3 billion people live on less than one dollar per day, and one billion people can not meet basic requirements (Peralta, 2003). Furthermore, 315 million people (one in every two people) in Sub Saharan Africa survive on less than one dollar per day and 184 million people (33% of the African population) suffer from malnutrition (UNDP, 2002). In Tanzania the situation is worse, as 50% of Tanzanians are considered to be basically poor with approximately one third of people living in abject poverty (URT, 2000). According to the

Household Budget Survey (HBS) of 2000/01, the proportion of the population below the national food poverty line is 18.9 % and that below the national basic needs poverty line is 35.7%. Indicators of income poverty also show growing disparities between urban and rural population, as well as across and within regions and districts; the urban poor constitute about 13% compared to 87 % in rural areas (URT, 2003).

Urban dwellers in Tanzania have been pursuing wide range of economic activities to redress the situation, taking in to consideration that, life in the urban areas has become more expensive while employment in the formal sector has gone down and real wages did not keep up with the price increases or even declined in absolute terms (Jamal & Weeks 1988; UNCHS 1996; Simon 1997). Based on this fact, some of urban dwellers have opted to urban agriculture. This is evidenced by the study done by Mougeot (2005), Foeken & Owuor (2000), and Foeken & Mwangi (2000) reported that urban agriculture expands considerably as an adaptive response by urban households to improve their food situation and to diversify their livelihood options under conditions of persistent economic uncertainty and threats such as unemployment and declining purchasing power. According to Sawio (1993), urban agriculture has been found to be a socio-economic survival strategy for urban poor residents, providing food and employment. It contributes to the livelihood strategies of the "better-off" as well as making use of 'idle resources' in the urban ecosystem which would otherwise go to waste. Similarly, Brock & Foeken (2005) reported that urban agriculture contributes to household food and nutritional security, the creation of informal employment, income diversification through sales of surplus produce or savings on food expenditures, and more broadly promotes urban food supply systems and, at least in potential, environmental sustainability.

Despite the fact that urban agriculture plays significant role in economic development, urban agriculture has not been given attention as a catalyst for urban development and important weapon for poverty reduction strategy. Although quite a lot of researches on urban agriculture have been done, including; Smith & Memon (1994) Nyange (1995) Rogerson (1997) Foeken & Owuor (2000), Foeken & Mwangi (2000) Hansen & Vaa (2004) Mougeot (2005), hardly of the cited studies attempts to provide empirical evidence related to contribution of the urban agriculture to poverty reduction. This study, therefore, intends to fill the identified gap, by examining the contribution of urban agriculture to poverty reduction focusing on vegetable production using

Kinondoni municipality as case study. Specifically the study aimed at (i) identifying types and quantity of vegetables grown in the study area (ii) establishing the contribution of urban vegetables production to poverty reduction.

## **2.0 Study Methodology**

In undertaking this study, a case study design was adopted because it is less expensive and helps to get in-depth insight of the unit under investigation. Kinondoni Municipal was chosen as a case study for this study because her dwellers actively involved in the urban agriculture especially in Mabibo, Ubungo, Mbezi, and Kibamba. Respondents for the study included Wards Executive Officers and Small holder farmers. Both simple random and purposive sampling methods were used to select the study respondents. Simple random sampling technique was used to select smallholder farmers, while purposive sampling was used to select Ward Executive Officers based on availability of horticultural activities in their wards. A total of 59 respondents were involved in the study, whereby 55 were small holder farmers and 4 were Ward Executive Officers.

Primary data for the study were gathered by using structured questionnaires, interview and checklist. Questionnaires focused on the demographic and socio economic aspects and were administered to all units of inquiry in the study area. Semi structured interviews were conducted with smallholder farmers and Ward Executive Officers. Checklist was used to collect relevant information related to profile of the area, types of horticultural crops grown by the smallholder farmers, kinds of interventions directed to promote urban agriculture sub-sector. Secondary data were obtained from Ward Executive Officers and Municipal documents. Data analysis was based on descriptive statistics, facilitated by the use of computer programme named; Statistical Package for Social Sciences (SPSS). The study intended to establish the contribution of urban vegetables production to poverty reduction.

### **3.0 Study findings and discussions**

#### **3.1 Types and Quantity of Vegetables**

##### **3.1.1 Types of vegetables grown by smallholder farmers in the study area**

Table 1 summarizes different varieties of vegetable products grown by the smallholder farmers in the study area. The results in the table show that *amaranthus* species were grown by majority (21.3 %) of smallholder farmers. This is followed by pumpkin (15.0 %), Chinese (13.3 %) and legume leaves (11.3 %). However, notable differences in the proportion of respondents who reported production of the remaining vegetable products were apparent. For example, while a relatively larger number of smallholder farmers reported growing of salad (8.1 %), “mnafu” (7.5 %) and spinach (6.9 %), very few sample smallholder farmers reported growing of cabbage (5.6 %), pepper (4.4 %), okra (3.8 %) and tomato (2.5 %). Reason attributed to this variation is partly due to differences in profitability of the products, availability of customers and climatic condition. That is, farmers preferred to cultivate vegetables with high profit, good number of customers, and suitable to climate. These vegetables include *amaranthus* species, pumpkins and Chinese as compared to the vegetables with either low profit, low number customers or unsuitable for the climate such as, tomatoes because of low profit and, okra because it requires high rainfall.

**Table 1: Types of vegetable products grown by smallholder farmers (%)**

Type of Vegetable	Frequency	%age
<i>Amaranthus spp</i>	34	21.3
Chinese	22	13.8
Salad	13	8.1
Spinach	11	6.9
“Mnafu”	12	7.5
Pepper	7	4.4
Tomato	4	2.5
Okra	6	3.8
Pumpkin	24	15.0
Cabbage	9	5.6
Legume leaves	18	11.3
<b>Total of Responses</b>	<b>160</b>	<b>100.0</b>

**Source: Survey Data, 2008**

### **3.1.2 Quantity of vegetable crops produced by smallholder farmers**

Table 2, presents the average quantities of vegetable crops grown by the sample smallholder farmers in the study area. Worth noting from the presented results, is that the quantities of all varieties of vegetable products grown by the sample farmers in the study area show a general increasing trend over time. It was established that, the leading factor responsible for this trend is increase in number of customers for vegetable products due high population growth of the city. Other reasons are; relative low price of the vegetables as compared to similar products, hence

increase demand of the vegetables. Besides that, availability of agricultural inputs like modern seeds, manure and manpower facilitate increase in vegetable production.

**Table 2: Quantity of vegetable crops produced in kg**

Types of Vegetable	Quantity produced per Year				Total Quantity
	2004	2005	2006	2007	
<i>Amaranthus spp</i>	191	224	575	1318 <sup>e</sup>	2308
Chinese	177	140	410	900 <sup>e</sup>	1627
Salad	Nil	Nil	25	508 <sup>e</sup>	533
Spinach	102	105	115	135 <sup>e</sup>	457
“Mnafu”	110	120	190	795 <sup>e</sup>	1215
Pepper	125	130	150	240 <sup>e</sup>	645
Tomato	NIL	NIL	NIL	2600 <sup>e</sup>	2600
Okra	100	120	140	150 <sup>e</sup>	510
Pumpkin	813	1015	1230	1560 <sup>e</sup>	4618
Cabbage	NIL	NIL	190	550 <sup>e</sup>	740
Legumes	785	795	885	895 <sup>e</sup>	3360

*Note e implies estimated figure*

**Source: Survey Data, 2008**

### **3.2 The Contribution of Vegetable Production to Poverty Reduction**

The contribution of vegetable production on poverty reduction in urban areas was analyzed by examination of some selected poverty dimensions, which are; household income and access of basic social services to include education and health services. The detail explanation of each is offered below;

### 3.2.1 The effect of vegetable production on households' income

Income determines the purchasing power at household level, such that the higher the income the higher the ability of the households to meet basic social services. In response to this, respondents were requested to indicate the contribution of urban vegetable production to household income. The findings in table 3 show that, smallholder farmers in the study area received significantly higher income per month after being involved in vegetable production compared to the period before engaging in vegetable production. These findings seem to suggest that, urban vegetable production has significance positive contribution toward reducing income poverty among households in the study area.

**Table 3: Monthly income received by sample smallholder farmers in Tzs**

Monthly Income	Number	Minimum	Maximum	Mean
Average income before engaging in vegetable production activities	55	2,000.00	300,000.00	65,672.70
Average income after engaging in vegetable production activities	55	10,000.00	840,000.00	163,000.00

**Source: Survey Data, 2008**

### 3.2.2 The effect of vegetable production on food security

Apart from the increase in income recorded by smallholder farmers, the respondents were also requested to indicate the effect of urban vegetable production on food security. Special focus was on the contribution of income accrued from vegetable production on household accessibility, availability and ability of households to acquire different types of food nutrients from various sources. The responses are summarized in Tables 4 and 5. The results in Table 4 reveal that, majority of smallholder farmers (65.5 % and 63.6 %) reported that food availability and accessibility respectively, at household level were improved significantly after being involved in production of vegetables compared to the period before engaging in production of vegetables.

**Table 4: The effect of urban vegetable production on food availability and accessibility (%)**

<b>Variable</b>	<b>Farmers Responses</b>	
	<b>Frequency</b>	<b>%</b>
<b>Food availability:</b>		
Increased	36	65.5
Remain the same	19	34.5
<b>Food accessibility:</b>		
Increased	35	63.6
Remain the same	20	36.4

**Source: Survey Data, 2008**

Further descriptive analysis of the contribution of income accrued from vegetable production on ability of households to acquire different types of food nutrients was carried out to verify aforementioned information. The results are shown in Table 5. From the table, it was revealed that, there was significant increase in consumption of all kinds of food nutrients. Interestingly, small holder farmers were able to access nutrients more frequently after being engaged in production of vegetables compared to the period before engaging in vegetable production. These findings seem to suggest that urban vegetable production has significant positive contribution toward reducing non-poverty income in terms of improving food security.

**Table 5: The effect of urban vegetable production on food nutrition (%)**

Food Nutrient	Before Engaging in Vegetable Production			After Engaging in Vegetable Production		
	Frequently Consumed	Infrequently Consumed	Not Consumed	Frequently Consumed	Infrequently consumed	Not Consumed
Protein food ( fish, meat, milk, eggs)	38.2 (21)	27.3 (15)	34.5 (19)	56.4 (31)	29.1 (16)	14.5 (08)
Vitamins food (vegetables, fruits)	49.1 (27)	36.4 (20)	14.5 (08)	61.8 (34)	38.2 (21)	Nil
Minerals food (small fish, vegetable)	63.6 (35)	18.2 (10)	18.2 (10)	74.5 (41)	25.5 (14)	Nil
Fat food (oil food, ground nuts)	50.9 (28)	29.1 (16)	20.0 (11)	63.6 (35)	27.3 (15)	09.1(05)
Carbohydrate food (starch such as maize)	78.2 (43)	16.4 (09)	05.5 (03)	90.9 (50)	09.1 (05)	Nil

*Figures in brackets represent number of respondents*

**Source: Survey Data, 2008**

### **3.2.3 The effect of vegetable production on households' accessibility of education services**

On this part, the concern was to examine the contribution of income accrued from vegetable production on household ability to pay school fees and other related facilities like stationeries, books and uniforms. The findings presented in table 6, reveal that, smallholder farmers ability to pay school fees and other related facilities like stationeries, books and uniforms increased significantly after being involved in vegetable production compared to the period before engaging in vegetable production. These findings suggest that, urban vegetable production has significant positive contribution towards reducing non-poverty income in terms of increasing accessibility of smallholder farmers to education services.

**Table 6: The effect of urban vegetable production on education service (%)**

Variable	Before Engaging in Vegetable Production	After Engaging in Vegetable Production
<b>Ability to pay school fees:</b>		
Increase significantly	54.5 (30)	63.6 (35)
Not changed	38.2 (21)	36.4 (20)
Decreased	07.3 (04)	Nil
<b>Sub-total</b>	<b>100.0 (55)</b>	<b>100.0 (55)</b>
<b>Ability to buy school facilities like uniform and books:</b>		
Increase significantly	52.7 (29)	60.0 (33)
Not changed	47.3 (26)	40.0 (22)
Decreased	Nil	Nil
<b>Sub-total</b>	<b>100.0 (55)</b>	<b>100.0 (55)</b>

*Figures in brackets represent number of respondents*

**Source: Survey Data, 2008**

### **3.2.4 The effect of vegetable production on households' accessibility of health services**

Apart from education service, smallholder farmers were asked to indicate the effect of urban vegetable production on health services. Special attention was devoted to find out the effect of income accrued from vegetable production on household ability to meet consultation and medical facilities costs. The results in the table 7 show that, the ability of smallholder farmers to meet both consultation and medical facilities costs increased significantly after being involved in vegetable production compared to the period before engaging in vegetable production. This finding implies that, urban vegetable production has significance contribution toward reducing non-poverty income in terms of increasing accessibility of smallholder farmers to health services.

**Table 7: The effect of urban vegetable production on health service (%)**

Variable	Before Engaging in Vegetable Production	After Engaging in Vegetable Production
<b>Ability to meet consultation fees:</b>		
Increase significantly	52.7 (29)	61.8 (34)
Not changed	45.5 (25)	36.4 (20)
Decreased	01.8 (01)	01.8 (01)
<b>Sub-total</b>	<b>100.0 (55)</b>	<b>100.0 (55)</b>
<b>Ability to buy medical facilities like drugs:</b>		
Increase significantly	56.4 (31)	65.5 (36)
Not changed	41.8 (23)	32.7 (18)
Decreased	01.8 (01)	01.8 (01)
<b>Sub-total</b>	<b>100.0 (55)</b>	<b>100.0 (55)</b>

*Figures in brackets represent number of respondents*

**Source: Survey Data, 2008**

#### **4.0 Conclusion and Recommendations**

Based on the findings of this study, it can generally be concluded that, urban horticulture has potential role to play towards reducing poverty among urban dwellers in Dar es Salaam. This is proven by the raise in income among the vegetable producers. On the side of non-income poverty there is increase in quantity of vegetable production, increase in food security, as well as improvement in accessibility and affordability of health and education services. To make the horticulture activities sustainable, it is recommended that, relevant authorities including the Kinondoni Municipal to make deliberate efforts in improving access to land, by legally allocating specific areas for horticulture in the Municipal, improving urban extension services, and reducing price of agricultural inputs.

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