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**Understanding Market Linkages of Urban Nutrition  
Gardens as incomes sources for HIV affected families in  
Ethiopia: The case of Addis Ababa and Bahir Dar Cities**

**FINAL REPORT**

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# 1. Introduction

## 1.1. *Background*

The HIV/AIDS pandemic has resulted in the emergence of a new category of poor people “the AIDS poor”<sup>1</sup>. This includes households with chronically ill individual and those who have experienced adult death during the last 2-5 years; households headed by single parents, the elderly or children due to an HIV/AIDS death; and households fostering orphans and vulnerable children (OVC). The urban nutrition garden program was initiated as part of HIV/AIDS support services particularly in area of care. The program intends to improve the nutritional status and income levels for AIDS affected.

The program provides assistance in the establishment of low-cost, low-labour intensive household nutrition gardens for low-income HIV/AIDS infected and affected women and orphans and vulnerable children in selected urban centres including Addis Ababa, Bahir Dar, Gonder, Dessie, Adama and Awassa towns. Although the income generation aspect of the gardens is considered to be critical for the poor HIV affected families, how vegetable marketing is performed is not clearly known. Hence this study was initiated to understand marketing of vegetables produced from the nutrition gardens.

As a matter of fact, marketing plays an important role in maximizing the benefit that could be obtained from any agricultural activity particularly vegetables which are perishable if not marketed on time.

In this particular case, producers are found in cities where they could easily access market. But physical proximity does not guarantee easy marketing of the

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<sup>1</sup> FAO 2000: HIV/AIDS and Food Security. An FAO perspective

products. The greater specificity of the vegetable market and its demand in terms of product quality and delivery times puts pressure on operators at all stages of the marketing channel which is intensified by two particular characteristics of vegetable marketing. The perishable nature of vegetables makes obligatory to complete certain operations within a precise and often very short time span. The seasonality of production also creates temporary, calendar-specific quasi-monopolies for individual production zones. This entails the cooperation of producers, intermediaries including transporters, wholesaler and retailers.

### **1.2. *Objective of the study***

1. Analyze marketing channels of vegetables produced by household nutrition gardeners
2. Analyze marketing performance of the vegetable markets in Addis Ababa and Bahir Dar.
3. Analyze vegetable market constraints and suggest possible strategies of efficient vegetable marketing for household nutrition gardeners.

### **1.3. *Methodology***

#### ***Sampling***

This study was undertaken in two purposely selected areas (Addis Ababa and Bahir Dar). Selection was made based on the relatively long experience of the beneficiaries providing vegetables in these locations compared to those in new project areas (Goder, Dessie, Adama and Awassa).



**Figure 1-1 Location of Urban Nutrition Gardens in urban centers Ethiopia grown by EAIAfrica partners**

Different group interviews were made with vegetable producers in the study areas on production and marketing of vegetables. Besides group interviews, samples were drawn from beneficiaries to collect primary data. Probability proportional to size sampling technique was used to select producers. Not all beneficiaries have long experience of growing vegetables using 100m<sup>2</sup>, 30m<sup>2</sup> and grow bags technique. In the sampling, beneficiaries with experience of more than one season were considered. Based on the total proportion of beneficiaries with the experience of more than one growing season for one of the three different technologies, 186, 166 and 248 growers were set to be sampled from among producers using 30m<sup>2</sup> drip irrigation kit, 100m<sup>2</sup> drip irrigation kit and grow bags, respectively. Proportionally, these make a total sample of 403 respondents from Addis Ababa and 197 samples from Bahir Dar. The 403 samples in Addis Ababa were drawn proportionally from Yeka, Gulele, Arada, Akaki, Nifas Silk Lafto and Kirkos sub-cities. However, because of large number of beneficiaries in Arada sub city, average sample size was assigned to this particular site to avoid skewed information.

**Table 1-1 Sample size from different types of gardens in the study areas**

Study area	Irrigation kits			Total
	30m <sup>2</sup>	100m <sup>2</sup>	Grow bags	
Addis Ababa	137	96	170	403
Bahir Dar	49	70	78	197
Total	186	166	248	600

### *Data Collection and analysis*

Project document and prior studies related to urban vegetable production and marketing were reviewed to understand the present conditions. Following the review, group discussion with different stakeholders and key informants were held. These helped to restructure the study towards attaining the objectives. Group discussions were held with beneficiaries in different sub-cities in Addis Ababa and in different Kebeles in Bahir Dar to collect primary information. Following the group discussions, structured questionnaire were administered to sample households. Similarly, participants in the vegetable market (mainly, retailers) were interviewed to get first hand information on marketing system of vegetables.

Data collected through group interviews were summarized to understand the situation and to help draw a conclusion. Data generated from sample households were coded and entered to computer for analysis. Before analysis, data were cleaned for inconsistency. SPSS software was used for both data entry and data analysis. Descriptive statistics was used to characterize marketing system of vegetable and identify constraints.

## **2. Socio-economic condition of the target population**

### *2.1. Demographic*

Among the sample respondents 86% were women while the remaining 14% were men. The men respondents are either guardian of orphans or in few cases

representing their wives in their absence. The average age of the sample gardeners is 39 with the range between 19 and 76 years. There is no much difference between Bahir Dar (36 years) and Addis Ababa (39 years) with regards to average age of the gardeners. In terms of education, 39% of the respondents in Addis Ababa and 20% in Bahir Dar attended formal schools (Table 2-1).

**Table 2-1** Level of education of respondents (%) in the study areas

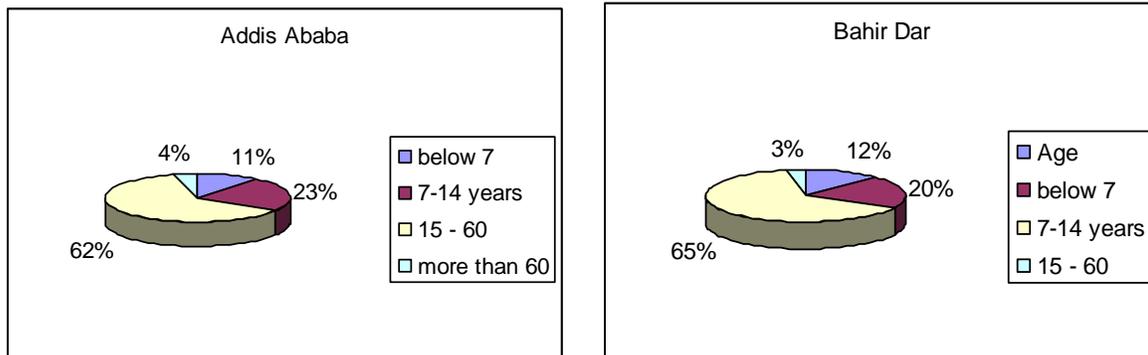
Education type	Education level	Study areas		
		Addis Ababa	Bahir Dar	Over all
	Illiterate	30	59	39
Informal schooling	Read and Write	31	21	28
Formal Schooling	Primary (1-8)	22	9	18
	Secondary (9-12)	17	11	15

*Source: Survey data 2007*

The overall level of illiteracy of the sample households is 39%, but relatively high in Bahir Dar (59%) compared to Addis Ababa which is only 30%. Through different informal education system including literacy campaigns and church schools, some 31% of the respondents in Addis Ababa and 21% in Bahir Dar are able to read and write.

The average family size for the sample household is about 5 people with a wider range of 1 to 15 people in the household. The average is slightly higher (5.3) for Addis Ababa compared to Bahir Dar (4.1).

Distribution of the family members by age categories is shown in Figure 2-1. The figure indicates more than 60% of the household members are in the active age group in both study areas. Aged family members account for the smallest proportion within the households reflecting the low life expectancy of people in the study areas. Based on this grouping, age dependency ratio was calculated. The dependency ratio is a measure of the portion of a population which is dependent on others (people who are too young or too old to work).



**Figure 2-1 Distribution of family members by age category**

Following standard international definitions, the working population is defined as those ranges between 15 and 64 years, and the non-working population are those whose age is either under 15 or older than 64 years. In some cases particularly in developing world where life expectancy is low, above 60 is considered as dependent. In this study above 60 is considered as dependent and accordingly the dependency ratio is found to be 0.84. Based on data from the 1994 census, the national dependency ratio is 0.97, indicating that for every 100 working persons there are another 97 persons who are not working (UNDESA 2006). Given a bit wider standard working age (15-64) than what we have considered here (15-60), the result is comparable. The dependency ratio is higher in Addis Ababa (0.89) compared to Bahir Dar (0.77). It is also interesting to see that the dependency ratio is higher for women respondents (0.86) compared to men respondents (0.73). This is important as high dependency ratio contribute more to poverty by reducing the income per capita of the family. This result confirms that focusing on women, as the project currently doing, is the right approach to reduce poverty, which is more serious on these households.

The overall dependency ratio can be subdivided into the child and the aged dependency ratios. The overall child dependency ratio is 0.76 with 0.69 in Bahir Dar and 0.79 in Addis Ababa. Aged dependency ratio is 0.086 ranging from 0.08 in Bahir Dar to 0.09 in Addis Ababa. This result is in agreement with the national average. Ethiopia, with a high fertility rate and short life expectancy, had a youth dependency ratio of 0.9 and an aged dependency ratio of 0.1 in 2002, whereas the comparable figures for Japan, a country in which fertility is below replacement rate and which enjoys exceptional longevity, the young and aged dependency ratio are 0.2 and 0.3, respectively (Alliance for Health & the Future. 2005, UNDESA 2006.)

## **2.2. *Livelihood Analysis***

Analyzing the livelihood of the respondents gave an overview of the status and the relevance of the project towards contributing to the livelihood of the beneficiaries. In this regard, some of the indicators considered include housing and source of livelihood. Results indicated that, about 51% of the respondents own their own house and the remaining 49% do not have their own residence house. Relatively more proportion of the households in Bahir Dar (55%) own residence house compared to those in Addis Ababa 50%. Majority of those who rented house (37%) rented from Kebeles (the smallest administration unit) compared to only 11% from private leasers, which also reflects how destitute the households are. Almost half of the respondents share the living compound with others (53% in Addis Ababa and 43% in Bahir Dar). More than 80% of those who rented houses (from private as well as kebele) share the living compound while only 18% of those who own house share the compound.

Further analysis shows that 39% of the respondents (60% in Bahir Dar and 29.5% in Addis Ababa) live in a single room house one room. The house of the vast majority of the respondents, 90% in Bahir Dar and 67% in Addis Ababa, live in

two room house. Moreover, 44% of the respondents (37% in Addis Ababa and 58% in Bahir Dar) do not have separate kitchen from the living rooms. The interrelation between number of rooms and the possession of separate kitchen from the living room also justifies that among those who do not have separate kitchen, 62% have only one room and 28% do have only two rooms. This in general shows that the households that participated in the project are all destitute families.

When livelihood is analyzed in terms of sources of income, wage is the first source of livelihood for about 39% of the households and also the second source of livelihood for 11% of the respondents (Table 2-2). About 15% of the respondents also ranked salary and pension as the first source of livelihood for households. Petty trading was ranked first by 11% of the households.

**Table 2-2 Major sources of livelihood for respondents, % of respondents**

Source of livelihood	First	Second	Third
Wage	38.7	11.3	3.9
Pension	15.1	0.7	1.3
Salary	14.8	0.5	
Agriculture	2.9	72.2	89.6
Petty trade	11.2	3.2	2.6
Hand craft	7.6	2.3	
House rent	3.6	2.5	
Assistance	2.7	2.5	
Trading food items	2.4	2.7	1.3
Fire wood collection	0.7	2.0	
Remittance	0.3	0.2	1.3
N	589	442	77

*Source: Survey data 2007*

Agriculture is indicated as the second major source of livelihood for 72% of the household and the third source of livelihood for 90% of the households. It may be worth mentioning that about 57% of the respondents have observed change in

priority of source of income since their engagement in vegetable production and further 60% of the respondents have realized that vegetable came to the first three ranks for income generation. This shows involving the urban poor in gardening activities resulted in agriculture to be one of the important sources of income living in urban settings.

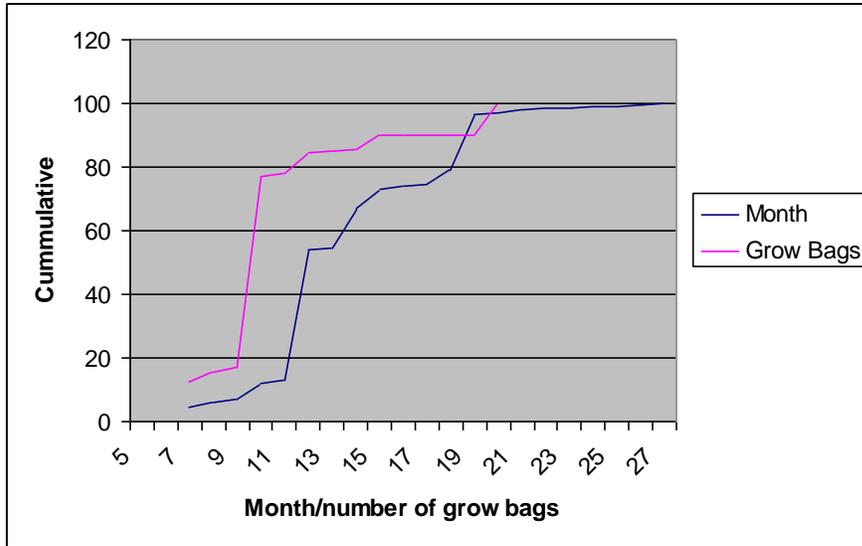
### 3. Vegetable Production, Utilization and problems

#### 3.1. Production systems



The program has introduced simple micro-irrigation systems and gardening technologies to reduce labor, water use, and land requirements for the poor urban households affected by HIV/AIDS. The beneficiaries have embarked on one of gardening types (30m<sup>2</sup> or 100m<sup>2</sup>

or container) depending upon the availability of land. The total number of nutrition gardens established so far in the two study areas are 7,262. Significant proportions of beneficiaries grow vegetables in grow bags (containers) mainly because of unavailability of land for vegetable growing. Figure 3-1 shows how long the sampled growers are in the program as well as number of grow bags used by growers.



**Figure 3-1 Cumulative months of using irrigation kit and number of grow bags as means of vegetable growing**

On average the sample gardeners have used the drip irrigation kit for about 14 months and about 84% of the them have used for 2-19 Months (Figure 3-1). Most gardeners (49%) produced vegetable twice a year and about 19% have also produced three times a year. The remaining 32% (57% in Bahir Dar and 20% in Addis Ababa) produced vegetable only once a year. The number of grow bags used by growers vary ranging between 5 and 20 with an average of 10 grow bags per beneficiary (Figure 3-1). The majority of the producers (60%) have 10 grow bags, 17% own below 10 and the remaining 23% do have more than 10 grow bags.

About half of those households who have used the drip irrigation kits obtained land from government and the remaining half installed the gardens in their backyards. About 57% of those who grow vegetables on 100m<sup>2</sup> garden obtained land from the government. On the other hand, the same proportion of those who used 30m<sup>2</sup> gardens used residence compounds. As the size of the garden increases, it becomes less probable to have land fitting to that size in back yards and it necessitates looking for land in other areas ( $\chi^2= 7.385$ , significant at 1%). In

Addis Ababa, the possibility of having larger gardens for garden depends in which sub-city the gardener live. For sub cities like Akaki-Kaliti and Yekka which are relatively at out skirt of Addis Ababa, there is possibility of having larger gardens in the residence compound as compared to Areda and Kirkos sub cities which are at the center (Table 3-1). As indicated in the table, all of the 30m<sup>2</sup> and 79% of the 100m<sup>2</sup> in Yekka sub city are in residence compound. Similarly 90% of 30m<sup>2</sup> and 92% of 100m<sup>2</sup> of the sampled gardens in Akaki Kaliti sub-city are in residence compound.

**Table 3-1 Source of land for the two gardens size by Sub-city (Addis Ababa)**

Sub City	30m <sup>2</sup>		100m <sup>2</sup>	
	Residence Compound	Kebele Allocated	Residence Compound	Kebele Allocated
Yekka	100	-	79	21
Kolfe Keranyo	29	71	29	71
Areda	6	94	65	35
Kirkos	29	71	-	100
Akaki Kaliti	90	10	92	8
Gulele	-	100	50	50
	43	57	55	45

*Source: Survey data 2007*

More than half of the respondents (55%) have experience of agriculture before they participate in this program, which helped them to work in a better way. This is true mainly in Addis Ababa as those who has the experience significantly produced more vegetable compared to those who do not has the experience. In case of Bahir Dar the difference is not significant. On the other hand, the remaining 45% do not have experience and they have learned by doing as well as from their training and neighbors.

Although vegetable production in Addis Ababa is common and consumers complain particularly on the quality of vegetables as growers are using polluted water coming out of industries to irrigate gardens. However, ECIAfrica project

beneficiaries do not use these water sources. Most of the respondents (84% in Addis Ababa and 62% in Bahir Dar) use tap water for irrigation. In Bahir Dar, about 27% of the respondents also used ponds. About 15% of beneficiaries in Addis Ababa and about 11% in Bahir Dar use river/springs to irrigate their vegetable. The trend may have positive impact over the alleged problem of using polluted mixed with industrial dert in Addis Ababa. Moreover, all producers who have used fertilizer used organic fertilizers mainly in the form of farm yard or waste (61%) and compost (19%). About 19% of the growers are using fertilizer at all. If the data is disaggregated, there is variability in terms of using fertilizer between the two study areas. Most growers in Bahir Dar (97%) use farm yard manure and 2% didn't use fertilizers at all. On the other hand, 41.5% and 29% of the growers in Addis Ababa used farm yard/waste and compost respectively. Relatively, higher proportion of growers in Addis Ababa (28%) did not use any fertilizer to grow vegetable.

Moreover, vegetables are transported from long distance to towns and by the time they rich the market, they have lost the quality. Although the leafy vegetables in Addis Ababa are mainly produced within the city itself, it has to pass through two markets at least to reach the consumer. In the process of handling and transporting the quality could deteriorate. Producing vegetables within the urban proper is one of the ways outs to avail quality vegetables to consumers. Respondents were asked how they evaluate their product with what is in the market. Most of the producers (95% in Addis Ababa and 77% in Bahir Dar) indicated that their product is by far better in quality. About 18.5% of the producers in Bahir Dar, however, said that there is no difference between their product and what they commonly see in the market.

The major reason behind the better quality is that their product is fresh particularly in Bahir Dar (74%) where pollution is not very serious. In Addis

Ababa too, 67% of the respondents indicated that their product is fresh. Similarly about 33% of the producers in Addis Ababa and 24% of the producers in Bahir Dar indicated that their product is produced with fresh and clean water.

Cognizant to this, 63% of the respondents in Addis Ababa and 55% of the respondents in Bahir Dar get premium price for their product and the remaining balance indicated that they do not get better price even though the product is quality. Given the level of consciousness about quality of vegetables, this level of response of consumer to quality is encouraging. On the other hand, retailers indicated that the vegetable species and variety matters on its demand. This was also depicted with group discussion at Akaki sub-city that the Swiss chard the project beneficiaries are growing is better although they attributed that to water used.

### **3.2. *Value of Production***

A range of vegetables are grown by the beneficiaries, including, but not limited to, kale, Swiss chard, lettuce, cabbage, beet-root, cauliflower, tomatoes, green pepper, potato, onions, garlic, spinach and other species. However, Kale, Swiss chard and lettuce are the dominant vegetables grown. In Addis Ababa, 78% and 71% of the gardeners have produced Swiss chard and Kale last season, respectively. Similarly, 70% of households in Bahir Dar produced Swiss chard. Kale is less common in Bahir Dar as it is only produced by 16% of the growers, which could be related to the suitability of the agro-ecology. It was observed that tomato is produced more in Bahir Dar (31%) compared to Addis Ababa (6%) and the reverse is true for lettuce where 29% of the respondents in Addis Ababa and only 6% in Bahir Dar produced lettuce.

Since the size of the garden is small and also growers in most cases grow more than one vegetable species, it was difficult to estimate the area covered by a single species. As a result, the total value of the product was considered. The average production per household vary depending up on the size of the garden, its management and the prevailing price, ranging between few Birr to more than 900 Birr per season. Linda also estimated an income between 837 and 1042 for Swiss chard, kale, garlic and lettuce per 100m<sup>2</sup> assuming 2004 yield and supermarket price (*Linda, 2005*). The overall average is about 210 Birr per season per household (Table 3-2). The season sometimes extend to almost a year for vegetables like kale and Swiss chard which are harvested continuously.

**Table 3-2 Average value (Birr) of production of vegetables in the study sites by size of garden**

Garden size	Addis Ababa		Bahir Dar		Total	
	Mean	N	Mean	N	Mean	N
100m <sup>2</sup>	389.24	86	138.40	70	276.69	156
30m <sup>2</sup>	296.94	122	122.24	48	247.62	170
Grow bags	171.90	159	63.60	75	137.19	234
Total	264.40	367	105.31	193	209.57	560

Source: Survey data, 2007

The average value of production per season varies with the type of garden (100m<sup>2</sup>, 30m<sup>2</sup> or grow bags) used. In Addis Ababa, the average values of production ranges from 171.90 Birr for grow bags to 389.24 Birr for the 100m<sup>2</sup> garden. In Bahir Dar the average production value is much lower as it ranges from 63.60 Birr for grow bags to only 138.40 Birr for the 100m<sup>2</sup> garden. The major reason behind the low average value of production in Bahir Dar is mainly related to the low frequency of harvesting leafy vegetables. But it should be noted that the unit price of vegetable in Bahir Dar is relatively higher.

**Table 3-3 Income estimation from selling “common vegetables” to supermarkets (calculations based on yields of 2004) and land required for minimum wage**

Supermarket:	ETB/year			
	1m2	24m2	100m2	m2 needed for average salary (2500 ETB/year)
Kale	8.67	208.05	867.57	288.16
Swisschard	8.36	200.62	836.58	298.84
Garlic	9.96	239.12	997.13	250.72
Beet Root	1.09	26.23	109.37	2'285.78
Lettuce	10.41	249.81	1'041.70	239.99
Onion	4.53	108.64	453.04	551.83
Pepper	4.35	104.50	435.78	573.69

Source: *Linda, 2005*

Besides the average production value, which gives the lump sum of the whole values, it may be important to look into the contribution of each vegetable. By far the largest contribution of vegetable income is from kale and Swiss chard. Not only in terms of the number of growers, but also in terms of the average value of product, kale and Swiss chard are very important vegetables (Table 3-4).

**Table 3-4 Contribution of different vegetable types for the household income in Addis Ababa and Bahir Dar.**

Vegetable Spp	Average value produced		Addis Ababa		Bahir Dar	
	value	N	value	N	value	N
Kale	152.86	313	162.96	283	57.64	30
Swiss chard	119.43	448	137.35	312	78.33	136
Lettuce	20.82	127	21.55	116	13.14	11
Tomato	28.79	88	39.65	26	24.23	62
Beet Root	21.70	66	21.70	66		
Green pepper	17.90	50	20.06	36	12.36	14
Potato	118.98	46	11	1	121.38	45
Cabbage	37.78	46	27.71	41	120.40	5
Onion	24.36	22	24.36	22		
Carrot	23.57	21	23.57	21		
Garlic	24.43	7	24.43	7		
Spinach	15.00	4			15.00	4
Cauliflower	30.00	1	30.00	1		

Source: Survey data, 2007

The average production value is high for kale, Swiss chard and potato, with the average value of more than 118 Birr/household. Others give very low value which may be related to the size of the area allocated to these vegetables. Yet there is variability between the two study areas. While kale and Swiss chard contribute more to the household income in Addis Ababa, potato and cabbage contribute more in case of Bahir Dar. However, cabbage is produced by few households. The contribution of Swiss chard is also considerable in Bahir Dar.

### 3.3. Utilization of vegetables

The purpose of producing vegetables is either for home consumption, sale or both. Because of the limited production which in turn depends upon the size of the plots majority of the production goes to consumption, 61% (Table 3-5). In few cases, it was observed that majority

**Table 3-5 Utilization, value used and % of user, of vegetable by producers**

Vegetable spp	Average value produced	Number of producers	% of value consumed	% of consumer	% of value sold	% of seller
Kale	152.86	313	59	90	41	48
Swiss chard	119.43	448	60	90	40	42
Lettuce	20.82	127	66	91	34	35
Tomato	28.79	88	48	100	52	42
Red -beet	21.70	66	70	92	30	29
Green pepper	17.90	50	60	100	40	24
Potato	118.98	46	94	100	6	11
Cabbage	37.78	46	37	85	63	46
Onion	24.36	22	85	95	15	18
Carrot	23.57	21	57	95	43	52
Garlic	24.43	7	71	100	29	43
Spinach	15.00	4	70	100	30	50
Cauliflower	30.00	1	100	100	0	0
Average			61		39	

Source: Survey data, 2007

of the production goes to the market. For instance, 12.5% of the respondent in Addis Ababa and 10% of the respondents in Bahir Dar, sold over 75% of their produces. When individual crops are considered, carrot is the most sold crop. For the major vegetables it ranges between 35% for lettuce and 48% for Swiss chard. This has also some relation with age of household head and education level. The younger and more educated household heads are more market oriented

In terms of utilization, majority of the respondents indicated that, vegetable production supported them to buy what the household needs most. Moreover, because of its availability the frequency of vegetable consumption within the household has increased.

### ***3.4. Production problems***

Production problems vary from one place to the other. In most sub cities in Addis Ababa (Gulele, Nifas Silk Lafto, and to some extent in Arada) availability of adequate water is the major bottleneck. Moreover, some of the growers are so poor and may not have money to buy water when the plant critically needs water. This is true when gardeners are not still generating money from the sale of vegetables. Similarly in some villages in Bahir Dar water shortage is serious and the productivity is not to the expected level.

Insect is also an important factor in some cases to reduce the production of vegetable. Aphids and cut worms are among the most important insects reported by majority of the farmers (87%). All the beneficiaries attempt to control the insects mechanically based on the training provided to them. Cut worm is more reported in Bahir Dar and Aphid is more important in Addis Ababa. Aphid is

particularly very important on kale and cabbages than other vegetables. The traditional methods include such a simple activity like showering the plant with water particularly for aphids. Similarly, ball worm and birds damage vegetable not only the amount of production but also deteriorate the quality of product.

In Bahir Dar, most of the vegetable production on 30m<sup>2</sup> and 100m<sup>2</sup> gardens are mainly on swampy areas as this is the most available space in the town free. During main rainy season, such plots are water logged and production of vegetable is not possible between June and September. Some of the beneficiaries started growing rice when the land becomes water logged. Thus most of vegetable production in Bahir Dar is mainly (57%) once a year although 39% and 6% of the producers reported production of vegetable twice and three times a year, respectively. These are those having vegetable garden on the drained soil. In case of Addis Ababa, only 20% reported producing once a year while 54% produced twice and the remaining 26% produced three times a year. These shows that the producers could not able to produce vegetable year round as

expected which needs close technical follow up.



The water logging fields in Bahir Dar

Some of the gardeners consider the size of the gardens to be too small to support the family for food and income. These force them to look for other means of sustaining their family and most of

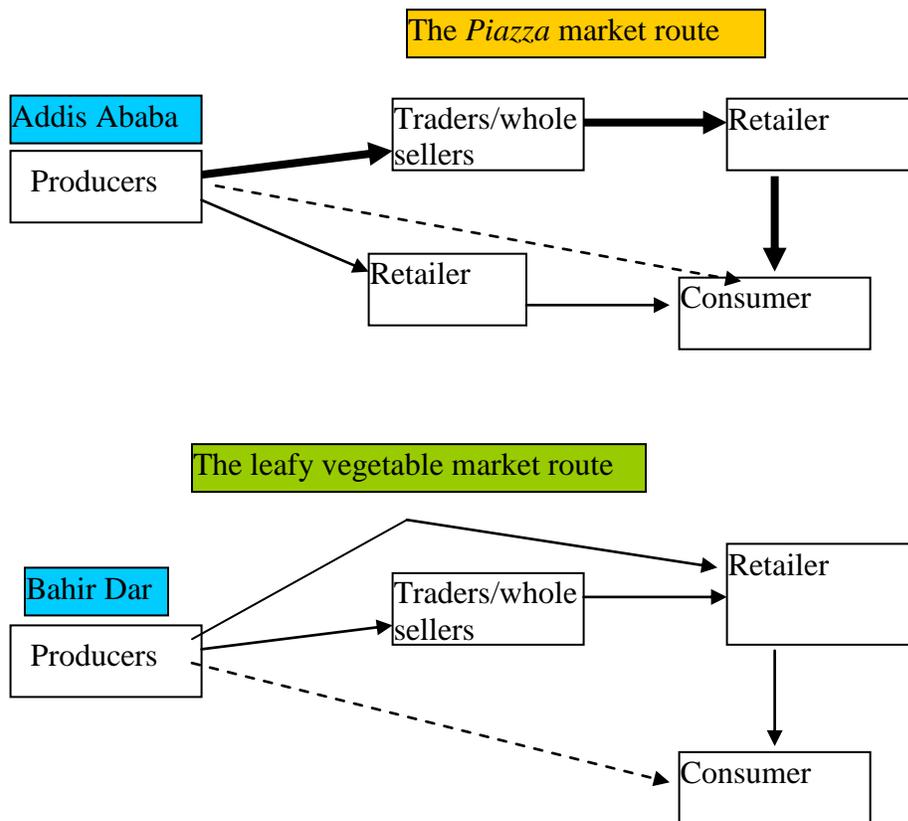
erent fields. As the result they do not have time to manage the garden which in fact need close supervision and intensive management. This has resulted in many instances to low productivity of the land and create disincentive for the producers.

## **4. Marketing of vegetables**

As discussed above, the major part of the vegetable production by HNG beneficiaries goes to home consumption given the subsistence nature of production. Their scale of participation in the vegetable market so far is small. Thus it is important to analyze the market at two different levels. The section starts with the general overview of the vegetable market in Addis Ababa and Bahir Dar which concentrate on market organization and participants. This will be followed by analysis of the nutrition garden beneficiaries participation in the marketing of vegetable and their problems.

### **4.1. *Vegetable market organization***

As in many other agricultural products marketing, vegetable market is linked from the supply of vegetable by producers to the retail of the product to be sold to the consumer. There is not much unique market setup of the vegetable. Vegetable supply to Addis Ababa markets is from different parts of the country although the central part of the country takes the lion share. There are traders in Addis Ababa that have good network particularly in the rift valley where the major supply of vegetable is from. The supper markets usually have their own suppliers most of which are traders and in some cases specialized producers, like *Genesis Farm* in Deber Zeit. The production of vegetable in the peripheries of rivers in Addis Ababa is also the major sources particularly for leafy vegetables. While those vegetables coming from outside the city mainly goes to the *Piazza* market from which retailers took to different corners of the city, vegetables produced in different part of the city usually goes to the near by whole sale markets in different parts of the city.



**Figure 4-1 Common vegetable marketing channels in Addis Ababa and Bahir Dar**

The supply of vegetable in Bahir Dar is both from around Bahir Dar and the central part of the country. During the period between August and January most of the vegetables are supplied from far away areas particularly the central part of the country as far as Shashamane in the South. In other months, the surrounding vegetable producing areas including Adet, Addis Zemen and Worota areas supply the market in Bahir Dar. Vegetable from the central part of the country and from the markets around Bahir Dar is brought by traders and sold to retailers in Bahir Dar. Moreover, those farmers producing around Bahir Dar also supply to the market directly and sold to retailers. The case of leafy vegetable except head cabbage, which some times also transported long from central part, is mainly supplied from the surrounding. The whole sellers which are also collectors of vegetables are mainly the traders who buy the bulk from the central

part of the country and other markets in the region and sell to retailers in Bahir Dar. Moreover, the surrounding producers also bring vegetable to Bahir Dar market and sell to retailers. The retailers buy in bulk either from whole sellers or producers and sell to consumers. In this system, relatively less perishable including potato, head cabbage, onion, garlic and tomato are common.

There are three known whole sale markets for leafy vegetable in Addis Ababa including Mesalemiya, Kera and Saris. The participants in these markets are producers of leafy vegetable in Addis Ababa and the retailers.



Figure 4-2 Whole sale and retail markets of leafy vegetable in Addis Ababa.

Leafy vegetable producers bring their product to one of these markets in bulk as illustrated in Figure 4-2 **Error! Reference source not found.** Depending on how far the farm is from the whole sale market, producers use labor or pick ups to bring the vegetable to the whole sale market. The transaction between the retailers and producers usually complete in the morning at about 9:30 am. Once bought, the retailers transport to their respective retail market areas. There are also some whole sellers who also distribute to other retailers in their respective retail market areas. The other participant of the market which are generally considered as retailers but do not have the license to retail vegetables. This group usually sells on the paths and village markets and commonly called *gullit*. Project beneficiaries if they retail usually participate in such market near by.

The supply of leafy vegetables to both Addis Ababa and Bahir Dar is mainly from the surrounding areas. Particularly in Addis Ababa there is production of leafy vegetable which are market oriented. They produce entirely for market and the supply to the three whole sale market described above. This market in fact is controlled by these producers. They own in most cases more than one-fifth of an hectare. In Bahir Dar, traders supply from the surrounding production areas and it is more seasonal compared to that of Addis Ababa. During the rainy season, the supply relatively increases in the market as most of the farmers in the surrounding area produce and supply leafy vegetable to the market.

In general, within the vegetable marketing channel most commonly observed in the study areas, the program beneficiaries have very little share. The scale of production and the orientation of the production of these producers have its own contribution when individuals attempt to market their produce. This is what is happening also in the US where small scale producers have to look for their own ways of marketing than entering into the established market channels (Jems,

2000). Their production is subsistence oriented where sale is only for subsistence requirements. As the result, they could not be the major player in the market. Thus, it is important to see the mechanisms of marketing attempts by the beneficiaries separately. The following section concentrates only on the marketing of vegetables by the program beneficiaries, including the close analysis of the channels they use, the marketing strategies they follow, level of market linkages and understanding of marketing constraints.

#### **4.2. *Marketing of vegetable by UAPHAW beneficiaries***

Vegetable produced are partly sold and partly used for home consumption. In general about 60% of the respondents only consumed vegetables they produced at home (Table 4-1 and Figure 4-3.) Relatively more producers in Addis Ababa (44%) sell vegetable compared to those in Bahir Dar (34%). Among the 40% who sells vegetables, the majority (27%) sell only some times while the remaining (13%) sell more frequently. This indicates most beneficiaries are targeting consumption than markets. In fact, given the small production of vegetable, supplementing their consumption is one important advantage for producers before generating income. The difference is more important for the 30m<sup>2</sup> and 100m<sup>2</sup> gardens. Close analysis shows that more producers who own 30m<sup>2</sup> and 100m<sup>2</sup> sell vegetables more compared to those who uses grow bags to grow vegetables. Only 15% of the grow bag users sold vegetable while about 60% and 59% of those using 30m<sup>2</sup> and 100m<sup>2</sup> sold vegetables. Moreover, about 66% and 73% of those growers using 30m<sup>2</sup> and 100m<sup>2</sup>, respectively in Addis Ababa sold vegetables. On the other hand, 47% and 42% of those growers using 30m<sup>2</sup> and 100m<sup>2</sup>, respectively in Bahir Dar sold vegetable. This shows that producers in Addis Ababa are relatively more market oriented compared to that of Bahir Dar.

**Table 4-1 Relationship between frequency of sell and total garden size, % of respondents**

Location	Frequency of sell	Irrigation kit			Total
		30m <sup>2</sup>	100m <sup>2</sup>	Grow bags	
Addis Ababa	Not at all	34	27	86	56
	Some times	47	49	12	32
	More often	19	24	2	12
Bahir Dar	Not at all	53	59	82	66
	Some times	29	23	9	19
	More often	18	19	9	15
Total	Not at all	40	41	85	60
	Some times	42	38	11	27
	More often	18	21	4	13

Source: Survey data, 2007

The level of market orientation of the respondents was also analyzed in terms of the proportion of vegetable they sell. Figure 4-3 shows the percentage of vegetable sold by households and majority of the households do not sell vegetable. Result indicated that among producers, 40% of them are selling their vegetables. Out of these 40% producers, it is only 12.5% and 7% of the respondents in Addis Ababa and Bahir Dar, respectively are selling more than three-quarter of the produces (Figure 4-3). Moreover, Table 4-1 indicates that, it is only 13% of the respondents which sell vegetables more often. This shows production is mainly for subsistence. If market is to be emphasized, those who are already in the market needs to be encouraged and strategies need to be designed to bring those who are not selling yet so that they could supply to the market.

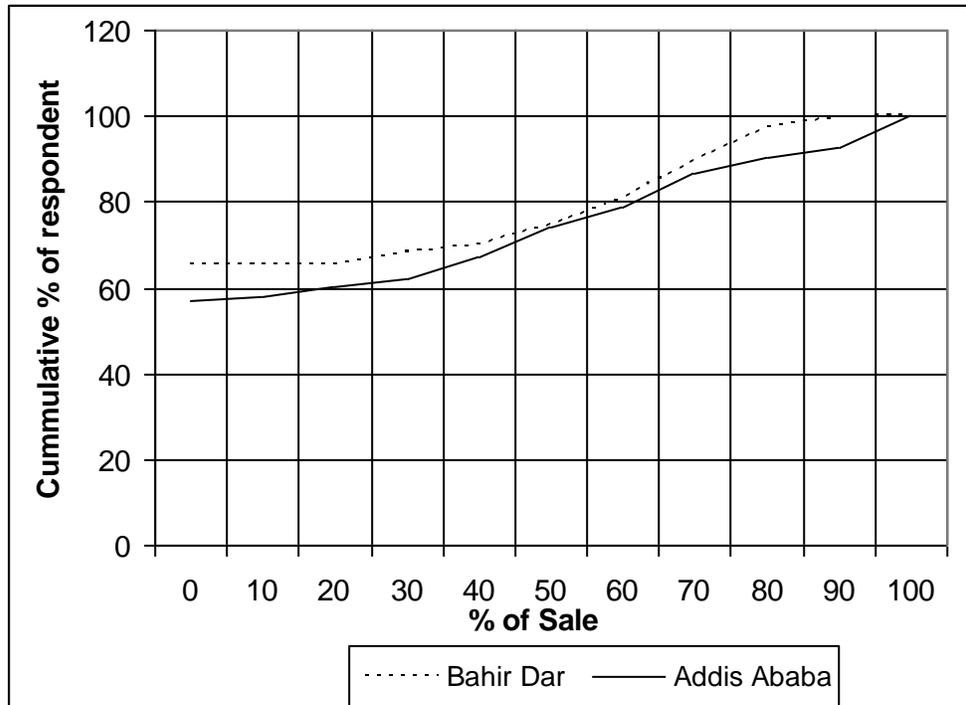


Figure 4-3 Proportion of sales by producers

Those growers who sell vegetables were asked to prioritize the major vegetables they are selling. Accordingly, 49% and 39% of the growers ranked Swiss chard and Kale number one respectively. Still the majority of the growers, 42% and 23%, respectively ranked Swiss chard and Kale as the second important vegetable they sell. If total proportion of gardeners who ranked the vegetable (1-3) were taken, the result shows that Swiss chard is ranked by the overwhelming majority (97%) as number one followed by kale (79%). Accordingly, the third crop is lettuce and the fourth one is tomato (Table 4-2). Thus the subsequent analysis concentrates on these vegetables as they are more important compared to others.

**Table 4-2 Proportion of producers ranking the vegetable sales by spp in order of importance**

Vegetables	Addis Ababa			Bahir Dar		
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>
Swiss chard	36.6	45.7	7	77.6	22.6	6.3
Kale	53	23.6	11.6	3	22.6	31.3
Lettuce	5.5	11.4	25.6	1.5	6.5	6.3
Tomato	2.4	2.9	7	10.4	41.9	25
Cabbage	0.6	3.6	25.6	1.5	3.2	
Beet root		7.1	14			
Pepper	0.6	0.7	4.7		32	31.3
Carrot	0.6	36	4.7			
Potato				6		
Onion		1.4				
Garlic	0.6					

Source: Survey data, 2007

### **4.3. Analysis of marketing channels**

There are two major marketing channels for vegetables produced by urban nutrition garden beneficiaries. These are the direct sale to consumers and the sale to retailers. In few cases, both in Addis Ababa and Bahir Dar, gardeners also sell to restaurants. This information was only depicted in the group discussions but was not captured in the individual interviews because of the rare occurrence of such practices. Respondents have also indicated that it is not easy to supply to restaurants mainly because the producers could supply small amount and the supply is not continuous. Restaurants require consistent and continuous supply which is difficult for such producers unless they are organized into groups to pool their produces. Otherwise these producers can only supply for few days in a week besides the seasonality of production, which is undesired by restaurants. Currently, majority of the gardeners sell vegetables directly to consumers. Results have shown that about 88% of kale and about 90% Swiss chard are directly sold to the consumers (Figure 4-4). Similarly 76% of tomatoes and 81% of lettuce are sold to consumers directly. The remaining small proportion is sold to

consumers through retailers. The sell of large proportion of leafy vegetables directly to the consumers could be mainly attributed to two reasons.

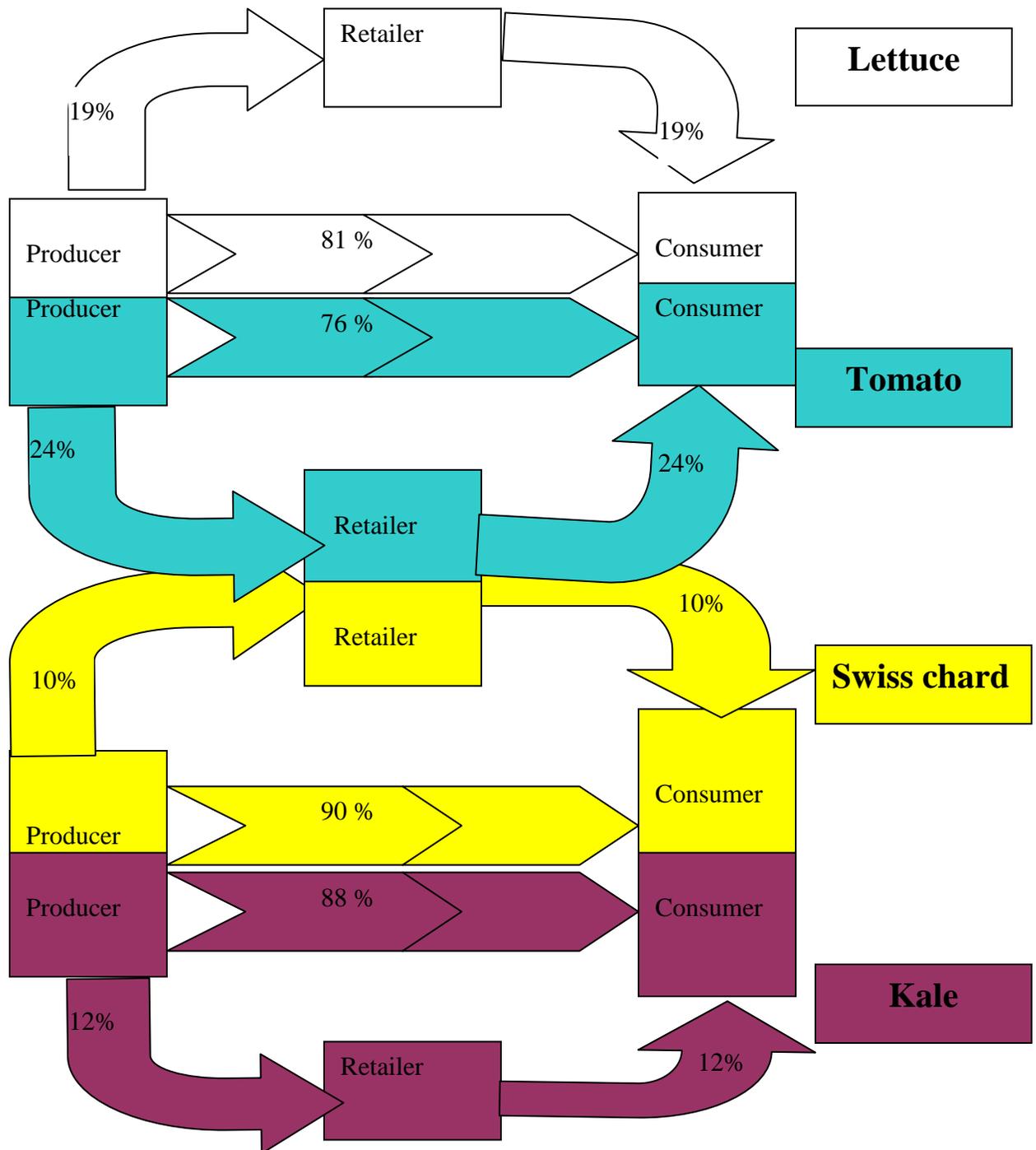


Figure 4-4 Proportion of major vegetable sold through different marketing channels (separate color for each species)

The first reason is that the vegetables are highly perishable and should be sold within short period after harvest. This puts retailers at risk since they may not be able to sell what they bought to sale in the same day. Particularly in



Bahir Dar, where temperature is relatively high, leafy vegetables perish more quickly and it is very risky to retail them. Retailers in different market have indicated that 20-25% of the leafy vegetables usually spoil before sale. This leads to high price difference between the retail price and the whole sale price. In Bahir Dar, the price difference is sometimes double encouraging producers to sell directly to consumers. To prolong vegetable shelf life, sellers frequently add water on vegetables, which is very common in Bahir Dar. This takes time and needs water source which makes leafy vegetable marketing more tedious for retailers.

The second reason is related to harvesting duration. Leafy vegetables have relatively longer period of harvesting and one can harvest the desired amount of leaves leaving other leaves on the stem until the need arise. This gives an opportunity to harvest the amount required to consume or sell As the result, gardeners could sell easily for consumers, particularly for the neighbors or other community members, who comes at any time to the garden.

On the other hand, vegetables like tomato are harvested in bulk as most fruits get ready for harvesting at the same time and thus need market that absorbs the bulk of the produce. This forces producers to sell for retailers as neighborhood consumers can not absorb the produce at once. Moreover, tomato could be on market for relatively more number of days depending on the harvesting stage before it spoils. This character of the crop encourages retailers to buy more tomatoes at a time.

### **Selling strategies to consumers**

As the major part of the vegetables is sold to consumers directly, looking into how the producers sell to consumers is very important. There are three different methods followed by producers to sell vegetables directly to consumers. These include selling at their farm, selling in the market and taking around the residence areas. In Addis Ababa, producers sell vegetables to the consumers mainly at their farm gate and sometimes in the markets. In Bahir Dar, besides selling at farm and in the market, taking vegetables around the residence areas is also common. The third strategy (taking around residence area) in general gives an opportunity to gardeners to access the potential consumers. It was also observed that gardeners discuss among themselves on the routes each seller follows to sell in the residence areas. This avoids following similar route to sell the same vegetable. Selling vegetables at the farm gate is more common for leafy vegetables as they are harvested continuously and as it is accessible for the surrounding community members. While 56%, 64% and 66% of the producers sell Swiss chard, kale and lettuce, respectively at farm gate for consumers, only about 45% of producers sell tomato at farm gate. The remaining proportions of growers for the respective vegetables sell their vegetables in the market to consumers.

Most of the growers in Bahir Dar tend to sell in the market unlike the case of Addis Ababa. In Addis Ababa, the proportion of those who prefer to sell in the market place and at their farm gate is equal (about 50%). On the other hand, in Bahir Dar the interest is diverse and it also goes with their diverse participation in the market and their knowledge too. While 61% of the respondents said that they want to sell in the market, the remaining respondents equally said that they want to sell at farm gate and at customers' places.

According to the majority of the respondents, the major reason of preferring to sell in the market place is to get more price (84% in Addis Ababa and 64% in Bahir Dar). On the other hand, while about 30% of the producers in Bahir Dar indicated that no customers are coming to their farm, only about 10% in Addis Ababa indicated that lack of customers' visit as a reason for looking to market places. Lack of customers coming to the farm is more common in Bahir Dar and thus many producers tend to sell in the market or take around residence area.

There is little experience of using vegetable selling shops by the participants in both Addis Ababa and Bahir Dar. Only about 5% of respondents in Addis Ababa and about 4% of the respondents in Bahir Dar have the experiences of using permanent vegetable selling shops. Particularly in Addis Ababa it was observed that gardeners can attract more customers if they can expand their business to cafeterias (value adding on the produce).

The preference to sell to retailers is low in both Bahir Dar (17.5%) and Addis Ababa (11%). This could be related to the level of price offered by retailers as the retailers want to get some profit while retailing. Besides profit, retailers also consider the amount that spoils which the producers do not take into account while estimating the price at different levels. On the other hand, consumers could pay better price than retailers offer in the market. Thus majority of

producers (86% in Addis Ababa and 79% in Bahir Dar) prefer to sell to consumers.

#### **4.4. Seasonality of Supply**

The drip irrigation system the gardeners currently using allows to produce vegetables through out the year. However, leafy vegetable production is not good in the main rainy season as it is suppressed by heavy rain. On the other hand, during dry season, the demand for vegetables also increases, as fasting period also falls in the dry season. The seasonality of vegetable supply was analyzed considering the widely marketed vegetables in both study areas separately.

The two commonly marketed vegetables in Addis Ababa and Bahir Dar were identified to see the supply of vegetable and how much the producers were responding to the shortage periods. In case of Bahir Dar, tomato and Swiss chard are selected and in case of Addis Ababa, kale and Swiss chard were identified. The response is analyzed by considering the time of abundance in the market and the time the gardeners are harvesting. **Error! Reference source not found.**Figure 4-5 indicates the time at which the vegetable is abundant in the market and the period in which producers harvest the vegetables.

The trend for both kale and Swiss chard in terms of time in which producers can supply and the vegetables are abundant in the market in Addis Ababa is the same. These vegetables are more abundant during the rainy season starting from June through November. In case of the gardeners under study, more producers harvest these vegetables between November and May. This is a very good opportunity for the gardeners as vegetables are scarce in the market. In Addis Ababa it was observed that producers have targeted the vegetable shortage period getting the advantage of better prices during these periods. The high

supply of these vegetable during rainy season indicates that the supply of Swiss chard to Addis Ababa during rainy season is from low rainfall areas or well drained soil areas.

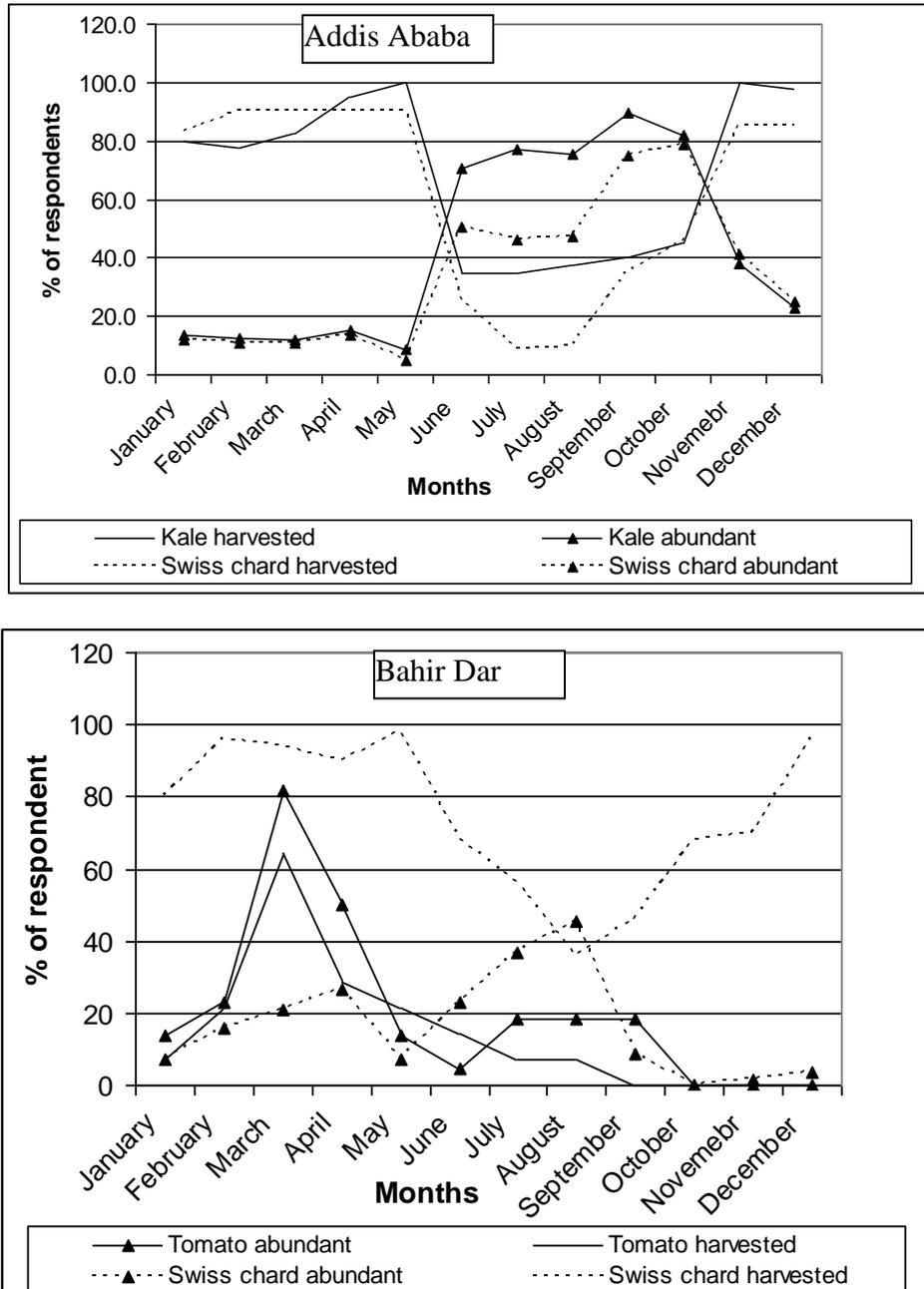


Figure 4-5 Periods of abundance of vegetables in the market and the supply by producers

In case of Bahir Dar, there is more tomato in the market during the months of March and April and the sample respondents also harvest tomato during this period. In this case, producers are targeting the long Orthodox Christian fasting period. There is more demand for vegetables in these months and thus despite high supply, price also remains high. On the other hand, producers do not harvest tomato in other months despite the low supply to the market. In case of Swiss chard, most of the gardeners do not produce much when there is more Swiss chard in the market in the Months between July and September. In Bahir Dar, some of the fields which are currently owned by gardeners remain water logged during July to September and beneficiaries tend to produce rice. So gardeners produce Swiss chard in the dry season when supply is in short and good market price prevails. This is an opportunity for producers. In general producers have targeted their production for the shortage period in case of Swiss chard in Addis Ababa and tomato in Bahir Dar. As the result, producers benefit also from tomato because of fasting.

#### **4.5. Market performance**

Market performance is usually measured in terms of price margin and price transmission. In order to measure the price transmission in particular, long term price data at different levels of the market is important. Unfortunately, secondary data on price of vegetable over period was not available and performance could not be measured in the study areas in terms of the price margin and transmission at different stage of the market. Thus price margin at different market levels at a given time as well as perception of the producers were considered to analyze the performance of the market. Moreover, attempts were made to see the performance of the market indirectly through level of market linkage.

#### **4.5.1.            *Marketing Margin***

Price of major vegetables at whole sale and retail markets including marketing cost were assessed just to understand the market performance. It should, however, be noted that only very limited amount of sales of the project beneficiaries are in this channel and are thus less affected by the size of this margin (Figure 4-2). In the leafy vegetables market, a bundle of kale is purchased at about 20-35 birr depending on the season. When retailed this bundle is sold at a price that range between 35 and 50 birr. The traders estimated the transport cost and marketing loss (spoilage) at about 8 birr per bundle. This will leave the traders with a return to labor of 20-25% before other taxes. The case of Swiss chard is also similar except that it is purchased and sold with a bit higher price. It is purchased in the whole sale market with a price range of 35 to 50 birr and it is retailed with a price range of 55 to 70 birr per bundle. With marketing cost of about 10 birr, the traders get a return to labor of 20-28% before other taxes. Some retailers who want to buy from the project beneficiaries even try to reduce the whole sale price as they usually goes to the farm to increase their profit margin. This pushes, producers to retail their product by themselves. On the other hand, the profit margin in Bahir Dar as indicated by producers and retailers is not as high as that in Addis Ababa. Most of the respondents (95%) pointed out that the difference is low or no difference; while in Addis Ababa about 17% of the respondents indicated that there is high price difference between different markets. About 22% of the respondents in Addis Ababa confirm that the price difference is above transport cost and only 2% of the respondents in Bahir Dar indicated that the price difference is above the transport cost. This shows market is less efficient in Addis Ababa compared to Bahir Dar. It also shows the availability of wider market opportunity in Addis Ababa compared to Bahir Dar.

#### 4.5.2. *Level of market linkage*

In the market chain, there are different participants including producers, retailers and consumers. How much these participants recognize each other in the chain indicates the level of strength of the linkage which indirectly reflects the level of integration and thus efficiency of the market. In this analysis, the level of linkage was measured using whether the producers have regular customers or not. The major customers of the producers are consumers and 48% of the producers have regular consumers in Addis Ababa. On the other hand, the corresponding figure for Bahir Dar is only 13%. On similar vein, 55% of those who sell to retailers have regular retail customers in Addis Ababa, and it is only 20% in case of Bahir Dar. Thus the level of market linkage in Bahir Dar is generally weaker compared to that of Addis Ababa. This is mainly because producers in Bahir Dar tend to sell in the market while in Addis Ababa most of them sell at their farm gate.

The amount of vegetable that goes through retailers is very small ranging from 10% for Swiss chard to 24% for tomatoes (Figure 4-4). About 59% of the retailers that buy vegetables from growers buy it at their farm, while the remaining 41% buy in the market. Moreover, about 56% of the retailers are not regular customers of the vegetable growers showing the loose market link between producers and retailers. The small size of production of project beneficiaries might have contributed towards less targeting of retailers and more towards consumers. The high social tie between producers and consumers who are regularly buying vegetables as they are living in the same village might also aggravated the loose link between producers and retailers

Retailers in Addis Ababa in particular have regular suppliers of vegetables with whom they have good market tie and thus consistent supply. The trend so far indicates retailers consider the gardeners as small and ad hoc suppliers to the market and thus do not target them as regular suppliers. This seems to emanate

from the fact that individual gardeners can not meet the requirements of either wholesalers or retailers in regular fashion. On the other hand, the market in general does not consider the issue of quality for which the project beneficiaries have comparative advantage. Because of this, retailers offer low prices for the leafy vegetables and this created loose market link between retailers and producers. Thus producers are more linked with the consumers than the retailers. This link is even good and sustainable as the producers and buyers live together for long and they knew each others. In general, the link between the market layers, in market the project beneficiaries are participating, is weak. It indirectly reflects the less organization of the market and thus less market efficiency at least in accommodating the project beneficiaries.

#### **4.5.3. Knowledge of Market**

Those producers who sell vegetables were tested if they have good information about the vegetable market which could be accessed by them other than those they are already using. In general, about 26% of the producers do not know other markets other than the market they are currently using. Yet there is remarkable difference among producers in the two study areas. While only 9% of producers in Bahir Dar do not know any other market, about 33% of the producers in Addis Ababa do not know any other market. This could be related to the size of the two cities and the orientation of production it self. As production is small, producers are not very active in looking for the markets. They could sell the small amount they want to sell any time in the village and they are not very much concerned about other markets.

Similarly about 31% of the producers do not have information about vegetable prices in different market places. The proportion of gardeners who do not have price information in Addis Ababa is twice (36%) that of Bahir Dar (18.5%). In general, the level of market knowledge and information of producers in Bahir

Dar is better than those in Addis Ababa. This is also evidenced by the fact that more than 10% of the producers in Addis Ababa do not know the price difference between the market they are currently using and other markets; while all respondents in Bahir Dar know the level of price difference. Therefore, the level of knowledge about the markets in Bahir Dar is better compared to Addis Ababa.

## 5. Analysis of vegetable marketing constraints

Vegetable marketing problems of DAI/ECIAfrica gardening beneficiaries are all interrelated as one causes the other. Most of the producers (87% in Addis Ababa and 69% in Bahir Dar) indicated that they need market places to sell their products (Table 5-1). Why they need the market place and why they can not access the market place are important issues to be analyzed. The reason for looking for market place is related to the difference between the market and farm gate prices. According to the gardeners, the farm gate price is much lower as compared to market places because of the social tie among the community members. As the result, producers want to sell vegetables in regular market places which enable them to access the large number of consumers that can offer better prices.

**Table 5-1 Major problems of vegetable marketing, % of respondent**

Problems	Study sites		Total
	Addis Ababa	Bahirdar	
No market place	87	69	80
Low demand	2	10	5
Transportation	2	2	2
Small production	7		4
Market fluctuation	2	4	3
High supply at harvest		11	4
No association		4	2

Source: Survey data, 2007

In the usual vegetable market places, spots are allocated to individual retailers and these retailers occupy the place all the year round and in fact pay taxes. In case of the HNG beneficiaries, when they bring their products to the market they do not have selling places and they are forced to try to sale on the paths/road sides. As these paths are not market place, the gardeners confront with police and in most cases they are chased by the police. The pictures below, indicate that the licensed retailers are in shade allocated for marketing of vegetables, while small producers and unlicensed retailers sell on the paths which are at risk to be chased.



**Figure 5-1 Difference in market place between the retailers and others**

At this point in time the NHG beneficiaries are not among the major players of the market mainly because of the scale of production, lack of market places and less recognition of the quality of the produces. The leafy vegetable whole sale markets in Addis Ababa for instance are all supplied by commercial producers in

Addis Ababa. The HNG beneficiaries can not participate because they have small area of production and they could only supply small bunch of vegetable at a time. These gardeners then tend to retail the small produce than participating in the whole sale market unless otherwise organized to pool their produce. The difficulty to link to the niche market like restaurant and supermarket is common. Some of the producers have tried to supply to restaurants but it was difficult for them as they can supply small amount on ad hoc basis. In some cases, restaurants enter into agreements with traders although buying from market is common in both Addis Ababa and Bahir Dar. It seems logical to organize these beneficiaries and give them market places in groups and/or link to other potential markets.

## **6. Analysis of opportunities and challenges**

### **Opportunities**

Producers easily access markets as they are within urban areas which otherwise is the major constraints for other producers far away from urban center. The producers could sell to the next door at their farm with out any marketing cost which is not the case for many producers in the country. Similarly, they can take to the market where there is more consumers and thus relatively better demand with minimum marketing cost.

From the way they have started, producers are some how organized through the local NGOs supporting the producers. During the field survey, it was observed that most of the gardeners knew each other particularly those using the kebele land. They have also contact person who links the producers with the NGOs currently assisting them. The current structure is mainly to link the producers with assisting organization. This is an opportunity for the producers to be

organized in to business groups for making better benefit out of the production of vegetable.

Producers are using drip irrigation facilities which enables them produce vegetable year round. This is an opportunity to tap the advantage of high price period, which is not the case for many other farmers relying on rain fall.

### **Challenges**

The challenge with the marketing of vegetable in this group is the amount of production, because of the limited land size and limited opportunity to increase it making them less competitive at all stage of marketing. They are not in a position to participate in the major market available (the whole sale and retail), because of this except the small village market. Moreover, producers are not very much market oriented and they sell small part of their produce to fulfill their subsistent requirements.

The other challenge is availability of the market place for the producers. Existing market places are already occupied by retailers. Moreover, these producers are ad hoc sellers who can not use the market place efficiently unless they are organized in groups.

The other challenge is again related to the size of the garden. As the size is small, the produce is small to sustain the family through production of food or as source of income. So, household member tend to engage in other business. As the result, attention is diverted that leaves gardens less productive.

## **7. Conclusion and recommendations**

### **Conclusion**

The HNG drip kit systems provide the HIV/AIDS affected households the opportunity to improve household nutrition and the possibility of earning income through sell of surplus produce. This helped them to cover some of their expenses. For some of the households, production of vegetable has given moral satisfaction that they at least have some activity to do than thinking only about HIV/AIDS. In some cases, it has also changed the view of others towards the HIV/AIDS positive people when they see that HIV/AIDS positive individuals are also productive. Thus the vegetable production by HIV/AIDS affected women is more than the economic return as it has also social and psychological benefits.

For marketing of the vegetable, availability of marketable surplus is a prerequisite. However, current production level per household is small and only limited proportion of the households sell relatively higher proportion of their total produce. The problems are related to size of and ownership of land and adequate supply of water which greatly affect the production level of the households. There are also other problems including the water logging problems in Bahir Dar which has contributed a lot in limiting about 57% of respondents in Bahir Dar and still about 20% in Addis Ababa to produce only once a year. The other agronomic problems observed is insect attack which affects the productivity of the garden. This all limit the production in general and the marketable surplus in particular affecting the level of market participation of the project beneficiaries

Besides low production, these producers are mainly subsistence oriented as only less than 11% of the producers sell more than 75% of their produce and not more than a quarter of the producers sell more than half of the produce. This shows the low potential of having households that participate in the marketing of vegetable.

Although selling vegetable at farm gate is possible, producers intend to retail their produce. This is evidenced by 50% and 61% of the producers in Addis Ababa and Bahir Dar, respectively that showed interest to retail their vegetables in the market rather than selling at the farm gate. It has also been discussed in different sections above that majority of the beneficiaries want to retail their vegetables mainly because of the high price difference between farm gate and retail price, particularly in Addis Ababa. In Addis Ababa, Price difference as described by producers is above transport cost. Data also shows that the retailers still remain with 20-28% return to labor before tax considering marketing costs such as spoilage. Because of this higher benefit, some of the producers are selling their vegetable on the paths with all the difficulties justifying the potential benefit of retailing. These producers deserve to have selling space. However, practically it may not be possible to provide each producer retailing space in the markets.

## **Recommendations**

### ***1. Increase production and productivity of vegetable***

Technical support is important to enable all producers to produce at least twice a year by making available and creating awareness on soil and water management recommendations. The partner organizations need to work with Agricultural Research to get the recommendation and capacitate the producers to use it. Besides the management of the gardens, the sustainability

of land ownership, and sustainable water supply is important. Moreover, there is also a need to revisit the size of the garden to bring more tangible impact on life of the beneficiaries since the current land size is too small to support the households with reasonable income.

## ***2. Identify and organize market oriented producers and link to the market***

Those growers currently selling more proportion of their production has to be identified and marketing group has to be organized. The implementing NGO partners need to do organizing the group and negotiating for vegetable selling space simultaneously as the requirement to get the space may also consider how the group is organized. Given their prior good relation with administrative structure, it may not be difficult for the NGO partners to secure market places for gardeners. For pooling adequate amount of vegetable, a group could consist at minimum twenty gardeners. This will give reasonable supply and still other producers can supply to the group whenever they have surplus to sell. There is a possibility to increase the supply as more technical support is given to producers to produce more. Since there is strong farm and shop linkage, it is possible to minimize spoilage and thus able to compete better by supplying fresh vegetable. Moreover, hence marketing cost is reduced because of minimum spoilage, the producer could get more profit than what they are currently getting while selling at farm gate.

## ***3. Capacitate the producers to actively participate in the market***

As producers are destitute, assistance is critical to construct temporary shelters in which they retail their produce. Once the group is formed and market place is facilitated, how the group should operate has to be left to the individual group. From the group discussion it was observed that some want to make the marketing as a cooperative and others want to identify a business

person from among the group. Both approaches could be used and the local partners have to facilitate the process so that in one hand the partners attain the objective of effective linkage to the market and on the other hand the groups attain the objective of getting better income. However, there is a need of training on how the gardens are linked to the shop and marketing strategy to minimize cost and maximize profit.

#### ***4. Link the producers to the appropriate market***

To which market the group has to be linked is very important hence each market has its own requirement. Given the current strength of the producers, they could easily access the consumers in the residence areas and the retail market. Depending on the availability of selling place, one of the two options could be used. Consumers in the residence area is most preferable option as there is less competition as well trust to be developed in the future by consumers.

In the long run, restaurants and supper markets could be used as important marketing option. For these markets, the sustainability and amount of production that could be made available is very important. Both restaurants and supermarkets do not want to loose customers because of shortage of vegetable supply and tend to make agreements with traders or dependable producers who can make available all the year round. There is thus a need to create entrepreneurship and well organized system to satisfy the demand of these niche markets. Once these are attained there is a need to build trust on HNG beneficiaries as sustainable vegetable suppliers, by creating awareness among the restaurants and super markets.

## 8. *References*

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