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**Contribution of Cobble Stone Enterprises to Urban Household Food
Security: The Case of Gulele Sub-city, Addis Ababa**

BY

AZEB NEGASH

ADVISOR

ABEJE BIRHANU (Ph.D)

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List of Acronyms

ICA	International Cooperative Alliance
FeMSE	Federal Micro and Small Enterprise
MSE	Micro and Small Enterprise

MoFED	Ministry of Finance and Economic Development
GSC	Gullele sub city
HICES	Household Income
UN	United Nation
FAO	Food and Agriculture Organization
HH	Households
WFP	World Food
HFS	Household food security
UCBP	University capacity building programs
CPCO	Cobblestone project coordination office
GO	Government Organization
NGO	Non Government Organization
AACRA	Addis Ababa City Road Authority
HFIAS	Household Food Insecurity Access Scale

Executive summary

This research describes the findings from a validation study of the Household Food Insecurity Access Scale (HFIAS), a 9 item 3 frequency measurement scale to assess the food security of urban households in Gullele sub-city. The HFIAS tool has been employed to assess the food security condition of households working in cobblestone chiseling and paving. The study employed household survey and in-depth case studies to elicit the required data.

Group discussion and key informants' interview was held to support the household survey. 91 among 910 were the sample respondents selected by systematic random sampling. Data collected by quantitative and qualitative methods was coded and analyzed using SPSS software application. The result from HFIAS tool indicates that 9 respondents were food secure, while 57 were mildly food insecure. The rest 27 were moderately food insecure for the 30 days recall period. The study has found out that cobblestone workers have obtained asset and income for their livelihood. In addition except fourteen respondents all have voluntary savings. Creating job for the youth is a serious challenge, thus the government of Ethiopia put high emphasis to overcome this by orienting the development activities to be labor intensive. Cobblestone project is among the many, which is introduced in 2010 in the sub-city, and hence a large number of unemployed people are beneficiaries from the project.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Although Cooperative work in Ethiopia has a long history, it was only in 1960 that a Decree to provide for the creation of farm workers cooperatives was legally enacted. Proclamation No 241/66 was the first cooperative legislation in which there were only 116 registered cooperatives until the revolution in 1974.

During the Derg regime there was an ambitious attempt to promote cooperatives at least in size. Proclamation No. 138/78 led to the establishment of different types of cooperatives. However, they were controlled and dominated by the socialist party at that time.

A new era in cooperative development started in 1998 when the new cooperative legislation No. 147/98 was enacted. This proclamation is the first in its kind to endorse all the cooperative principles, which are accepted by the International Cooperative Alliance (ICA.1996), such as voluntary and open membership without gender, social, racial, political and religious discrimination.

In Ethiopia the small scale producer cooperative sector is the second largest employment following agriculture. (Micro and Small Enterprise Strategy, 1997:5). According to the 2007 census, the total population for 8 regions amounted to 2,204,653, of which 1.32 million people were engaged in micro enterprises activities.

According to the Federal Micro and Small Enterprise agency (FeMSE) there are about 98,000 micro and small enterprises (MSEs) in Ethiopia; of this 6487 MSEs are organized in

Addis Ababa. There are 350345 beneficiaries in the country while 83243 are found in Addis Ababa.

Gullele is one of the 10 sub- cities in Addis Ababa. In this sub city there are 896 MSEs with 12574 members. Cobblestone activity is introduced in the sub-city in December 2010. There are 69 cobblestone enterprises with 910 workers.

Table 1.1: Distribution of MSEs and Operators in the sub city

<i>Type of activities</i>	<i>Total Number of MSEs</i>	<i>Total number of beneficiaries</i>
Construction	233	1993
Metal/wood Work	50	355
Food processing	135	1248
Urban agriculture	37	301
Weaver/garment	244	5252
Cobblestone	68	910
Others	129	2515
Total	896	12574

Source: pers. Fekadu Lemesa 2011, Gullele MSE office

Gullele sub city is inhabited mostly by poor and disabled people (Gullele MSE office).According to Urban development plan MoFED (2006:5), the main problem confronting the sub-city includes urban poverty and under development manifested among others in the form of unemployment, inadequate housing, social and physical infrastructure, poor health, inadequate water supply and sanitation systems.

1.2. Statement of the problem

According to MoFED(2006), the urban population is growing at a rate of 4.4% per year, and is estimated to reach 22 million by 2020. The average urban unemployment is also estimated to be 26% (MoFED, 2006). The household income consumption expenditure survey (HICES, 2004/05) result indicates that about 35.1% of the nation's urban populations are living below the poverty line which is \$1 per day. Thus, this situation calls for intervention through different mechanisms such as provide job and credit. Therefore, addressing the appalling conditions in the urban sector is believed to have due consideration in the country development agenda.

The policy of cooperative development introduced in 1998 suggests that small scale producer cooperatives are designed to provide job, credit, technology and other scarce resources to the urban poor and the contribution of such cooperatives has been substantial in urban development of the country as a whole. Hence these enterprises are more convenient for urban centers as they are labor intensive (Abera, 2010).

Moreover, poverty and unemployment together with the government MSEs strategy (1997) has opened the door to a number of small-scale producer cooperatives where the poor earn their living.

Many of the studies undertaken in the areas of MSEs have focused on aspects such as enterprise constraints, performance, growth, credit, etc. A study by Gebrehiwot and Wolday (2006) for instance focused on major regulatory constraints facing MSEs in Ethiopia including inefficient/arbitrary tax administration, high collateral requirement, lack of inadequate business premises and lack of business service. In addition Abera (2010) identified the challenges of managerial and organizational aspects of

MSEs development. Messay (2008), mention the role of micro and small enterprises in local development which encompasses certain facets of livelihood. Wogari (2009), while providing important insight into the role of micro and small enterprises as a source of sustainable livelihood, has not touched its contribution to food security.

No research was conducted in relation to the food security contributions of cobblestone in Addis Ababa. This paper has thus, attempted to identify and analyze the contribution of cobblestone enterprises to urban household's food security of course as a result of their engagement in the business.

1.3 Research objectives

The main objective is to assess the contribution of cobblestone enterprises to improving urban household food security. Specifically, the study tries to:

- assess the back ground of cobblestone workers and the working conditions;
- explore the household asset and income conditions of cobblestone workers;
- investigate their performance and challenges in order to provide a better understanding of their contribution to food security;

Operational Definitions of Terms Used

Raw stone -a big stone which is prepared to be chiseled.

Quarry men- are those who dig out the raw stone for chisellers.

Chiseling -preparing 10x10 cm chiseled cobblestones for pavers.

Cobblestone- chiseled stones ready for paving.

Paved road- roads paved with cobblestone.

HFIAS- A measurement tool used to assess the food security situation of respondents.

Household- Those that sleep under the same roof and take meals together at least four days in a week (FANTA). This definition is valid for the Household Food Insecurity Access Scale (HFIAS) measurement tool which is used to request the nine generic questions for respondent, since

she or he is responding to all questions on behalf of the household members.

1.4 Significance of the study

Micro enterprises have tremendous role in enhancing the livelihood of the poor. Recently, policies and strategies that support such enterprises are designed so that they would achieve the desired goal. Therefore any intervention made in this regard requires a better understanding on how far such businesses contribute to food security.

Hence, this study provides an important academic ground for further studies to be undertaken in analyzing the contribution of cobblestone in enhancing urban household food security.

1.5 Scope and Limitation of the study

The study was undertaken among specific target groups and in specific area in Addis Ababa. The study was limited to 91 selected representative respondents in Gullele sub city (GSC); and focus on cobblestone enterprise which is amongst the many types of MSEs. It is also limited to the analysis of the contribution of cobblestone enterprise to urban household food Security. In addition there is limitation of accessing data about real income and saved money by the respondents because they refuse to tell about it.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Food Security

The root concern with food security can be traced back to the world food crises of 1972-74: and, beyond that, at least to the Universal Declaration of Human Right in the 1948, which recognized the right to food as a core element of an adequate standard of living (UN 1948), S.maxwell and T.R Frankenberger.

Food security was first defined in the proceedings of the 1974 World Food Summit as: availability at all times of adequate food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuation in production and prices (UN, 1975). In 1983 FAO expanded it to include the notion of ensuring that all people at all times have both physical and economic access to the basic food that they need (FAO, 1983).

In the World Bank's (1986) report of poverty and hunger, this concept of Food security has been further elaborated in terms of: access of all people at all times to adequate food for an active, healthy life.

The 1996 World Food Summit in its plan of action adopted still more complex definition: food security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Many researchers have adopted this definition to their works (Markos1997; Hailu 2000). This definition is again refined in the state of food insecurity

2001: Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary food preferences for an active and healthy life (FAO, 2002).

On the basis of the food security concept indicated here, Ethiopia is found to be one of the most food insecure and food aid dependent countries in the world. A great majority of people both in urban and rural areas have been suffering from chronic and transitory food shortfalls particularly over the past recent decades. The number of food insecure HHs has been increasing, whilst per capita food availability has been decreasing. For instance, as Woldeamlak (2009) noted the average per capita food availability was 128.08kg for the period 1961-1974, and it declines to 119.99kg in 1975-1991. Though the average per capita food availability was 125.41kg during 1992- 2001, still it remained far below the recommended average per capita daily requirement. This suggests that the per capita food supply simply stagnated far below the minimum required level for over four decades. The large gap between food demand and food supply was filled by food imports and food aid, the later contributing the largest share.

In this regard, different researchers agree that the causes of the existing food insecurity problems in Ethiopia are numerous and interrelated. These include rainfall variability, soil degradation, inappropriate storage facility, and pre and post harvest crop loss, inability of the households to purchase adequate food, less and fragmented farm land size, lack of off-farm income opportunity, the underdevelopment of livestock sub-sector, inadequate credit and extension services, tenure insecurity (Mesfin, 1984/1999; Debebe 1995; Markos, 1997; Kifle and

Yosef, 1999; Mesay, 2001; Degefa, 1996/2002; Bekure, 2005; Dessalegn, 2009; Woldeamlak, 2009).

2.2 Food Security at National or Regional Level

Food security is also sometimes considered from collective or national view point, referring to “national food sufficiency”. Some would argue that individual food security and national food self sufficiency are two different and unrelated concepts. Indeed, national self sufficiency is neither necessary nor sufficient to guarantee food security at the individual level. India, for instance, is self sufficient but a large part of its population is not food secured. On the other hand, Hong Kong and Singapore are not self sufficient, but their population are food secure due to the countries capacity to import food. Food security therefore brought about by a combination of individual, house hold, and community, national and even international factors. In particular, efficient trickle-down and redistribution mechanism, and transfer based entitlements (Sen, 1996) (i.e. individual access to those mechanisms) area required in order that national self sufficiency ensure individual food security (FAO, 2007).

In general, the recent concept of food security has given more attention to household and individual than its availability at international, national, regional, *woreda* or *keble* levels. This is because, as already indicated, increasing food production, supply and sufficiency at broader levels does not necessarily ensure that each and every individual is food secure, this is why ,as reported by the(WFP2009). Over one billion people throughout the world have been suffering from hunger and malnutrition despite the fact is more than sufficient food supply at global level.

2.3 Household Food Security

HFS is emerging as an organizing for development thinking and objective of development initiatives. To reduce and monitor food insecurity we must determine who is food insecure, why and how they became vulnerable, and where they reside (S. Maxwell and M .Smith, 1992). Government policy makers, donor's agency, and Non- Governmental Organizations (NGOs) have all attempted to personalize this concept by deriving a series of indicators. Alternative indicators have been sought which are less expensive, timely and reliable in locating the food insecure. Consensus still has not reached on acceptable indicators

and methods of measurement (Haddad et al. University of Guelph, 1991). Recently, however, many have begun to question the validity of the commonly used indicators of food security measurement at national level as representative of indicator of access to food at household level. The notion of food entitlement (Sen, 1981) has played a critical role in this respect.

2.4 Indicators of Household Food Security

As Dewal (1989) noted, "One of the earliest examples of HFS monitoring comes from India. Because famine was a recurrent phenomenon in India, the British administration drafted the India code in 1980". The aim of these code developed in provisional basis was to ensure the maintenance of efficient channel of information by means which the approach of scarcity or famine may be detected in time and to provide for a state of preparedness in respect to measure of relief when the emergency arises. Implementing these indicators within the Indian context or other

countries found to be difficult and hard for both academia and development practitioners.

Typical indicators of food consumption, for example, household calorie adequacies from recall, or more complex indicators such as income level food expenditure, have proven to be difficult and too expensive to incorporate in to ongoing monitoring and evaluation systems (Haddad et al, 1991; O'Brien, Place and Frankenberger, 1988).

As Debebe (1995:9) noted "Assessment of food insecurity is a difficult issue as there is no universally established indicators which serve as measuring tool". However, several researchers agree that numerous interrelated socio economic, environmental and political factors determine food security situation of a given society.

Several food insecurity indicators have come in to use along with the development of the concept of food security. The utilization of these indicators depends on the procedure, purpose and depth of the research. Three most important indicators have been developed which enable a researcher asses, analyze and monitor food security situation of the people under consideration. These are supply, food access and outcome indicator. These can be itemized in to two major categories based on their use. Supply and access indicators are considered as process indicators and they could measure food insecurity in the region under study. On the other hand outcome indicators measure the level of food intake (Debebe, 1995).

As Debebe (1995) pointed out supply indicators are not appropriate to analyze food security situation at household level. Rather they provide a general picture of the food security status at broader levels such as national, regional or societal level. But access and outcome

indicators serve better to measure household food situation. The detail of the three major indicators is given in the table below.

Table2.1: Indicators of Household Food Security

Supply Indicators	Food Access Indicators	Outcome Indicators
Metrological data	Land use practice	Household budget and expenditure
Natural resource data	Dietary change	Food consumption frequency
Agricultural production data	Livestock sales	Subsistence potential
Market information	Sales of assets	National status
Information on pest damage and stock disease	Change of food source	Storage estimate
Food balance sheet	Access to loans/credit	Household perception of food insecurity
Regional conflict	Seasonal migration	
Agro-ecological models	Diversification of income sources	
	Livestock diversification	

Sources: Debebe (1995) as summarized from Frankenberger (1995)

2.5 Household food insecurity accesses scale/HFIAS

Meaning of the indicator/measure

The HFIAS is a tool to assess whether households have experienced problems in food access in the preceding 30 days. The tool is composed of nine questions that ask about modifications households made in their diet or food consumption patterns due to limited resources to acquire food. It measures the severity of food insecurity in the

past 30 days, as reported by the households themselves (Mark, 2009).

Measuring food insecurity is complex and multidimensional concept. For simplicity of understanding it can be viewed from availability dimension, access, distribution and utilization dimension. A multiple of methodological approaches can be employed to assess and measure food security (HFIAS: 2007).

Food insecurity may occur in the face and availability, due to the ill-off either of three dimensions including the access. These conditions are: 1) Anxiety and uncertainty about the household food supply: 2) Insufficient Quality (includes variety and preferences of the type of food): 3) Insufficient food intake and its physical consequences.

To mitigate the problem it calls for investigation of the source. If the approach is for instance, from utilization dimension of food, then measurement should employ anthropometric method. However if the intension is to see the access status of household to food, then HFIAS should be used.

Being one of the varieties of measuring methods to measure food security (insecurity), HFIAS comes to point across the entitlement of resources with which each household could be able to access food to ensure a healthy and active life. But practically, the approach also involves the investigation of behavioral aspects (perceptions and stress) of food insecurity that subsequently drives from shortage of existed resources (FANTA, 2007).

The nine HFIAS occurrence questions relate to three different domains of food insecurity found to be common to the cultures examined in a cross-country literature review (FANTA 2004, Coates, 2004).

The generic occurrence questions, grouped by different domains, are:

1) Anxiety and uncertainty about the household food supply:

Q1. Did you worry that your household would not have enough food?

2) Insufficient Quality (includes variety and preferences of the type of food):

Q2. Were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?

Q3. Did you or any household members have to eat a limited variety of foods due to a lack of resources?

Q4. Did you or any household members have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?

3) Insufficient food intake and its physical consequences:

Q5. Did you or any household members have to eat a smaller meal than you felt you needed because there was not enough food?

Q6. Did you or any household members have to eat fewer meals in a day because there was not enough food?

Q7. Was there ever no food to eat of any kind in your household because of a lack of resources to get food?

Q8. Did you or any household members go to sleep at night hungry because there was not enough food?

Q9. Did you or any household member go a whole day and night without eating anything because there was not enough food?

Based on a recall period of four weeks, there are nine occurrence questions prepared for each respondent to be answered by 'Yes' or 'No'. If the respondents answered 'Yes', frequency of occurrence question will be followed for all of the nine questions.

Having adapting, organizing and presenting questions about occurrences as well as perception about food insecurity, then four indicators about HFIA measurement should be employed to assess the food security of respondents. These are: HFIA- related conditions, HFIA-related domains, HFIA-scale score and HFIA prevalence.

2.6. Food security assessment

Food security assessments are not different from general assessment in their aim, but look more specifically at how people try to maintain a secure food environment for themselves, and whether they succeed. The focus of food security assessment was on evaluating the food security situation for various groups of people. In addition, food security assessments can help to predict upcoming food insecurity or can predict the duration of an insecure food periods (Lisa et.al, 2007).

2.7. Micro enterprises in developing countries

Micro enterprise represents a crucial part of the economy and of the labor market. In many developing countries, they play a major role in employment creation, production and income generation. The sector often tends to absorb most of the growing labor force in the urban areas, particularly in developing countries with a high rate of population growth and/or urbanization (Hussmans and Mehran, 2005, cited by Messay, 2008:22).

Mulu Gebreeyesus (2009) also noted that micro enterprises in developing countries like Ethiopia are the major source of employment and income for the urban population. According to Solomon (2004) micro and small enterprises have a number of potential advantages to the economies of least developed countries. These enterprises are suitable

to the factor endowments of least developed countries as they utilize domestic resources and use labor-intensive technology.

2.8. Micro enterprise in Ethiopia

In Ethiopia the idea of Micro & Small Enterprises development emerged as a promising agenda in the 1980s. A variety of reasons have been cited for the surge of interest in MSEs development, including:

- _ MSEs are a better way for poverty reduction
- _ MSEs are a platform for sustainable development and productivity
- _ MSEs are important actors within the trade sector and a platform for economically empowering women and men (Anne et al. 2006). The MSE sector plays an important role in providing people with livelihood and income generating opportunities, providing income and services to people who cannot get employment in the formal sector. In November 1997 the Ethiopian Ministry of Trade and Industry has published the "Micro and Small Enterprises Development Strategy", which identifies a systematic approach to alleviate the problems and promote the growth of MSEs.

Many micro enterprise studies attribute observable outcomes to the micro entrepreneur's individual resources. Wogari (2010) states, these businesses have been practiced for long in different parts of the country, either as the only or as a supplementary source of living for the poor. To elaborate his argument, he contends that micro enterprise have raised the incomes of their operators despite the inevitable relative difference in the size of these incomes.

2.9 Cobblestone project

Paving roads with cobblestones begun in Egypt more than 3.500 years ago. From then on, cobblestone pavements were used worldwide in cities such as Berlin, New York and Paris. In Ethiopia, the Germany International cobblestone project was introduced in 2006 as part of the university capacity building programs.

Adama was the first city to train workers in the different processes of producing and paving with cobblestones. In one year, the German cobblestone experts have trained more than 5000 people with whom they have paved 20,000 square meters in Adama city (UCBP, 2008)

Cobblestone paving is not really a new concept, even for Ethiopia, where the technology was used over 100 years ago (engineering capacity building project, 2008). However, over the past two years, the idea of cobblestone paving, particularly in secondary cities, has really taken off. The concept is simple local resources are used in a very labor intensive process to pave roads, saving the foreign currency needed to purchase the components of asphalt and at the same time providing jobs to large numbers of Ethiopians. Now, roads in many Ethiopian cities that would have remained dusty and muddy, and therefore infrequently used, are becoming high traffic through fares (ecbp, 2008).

2.10 The cobblestone project in Addis Ababa

The cobblestone project coordination office (CPCO) has been established to coordinate the overall cobblestone project work in the city by planning, organizing and facilitating the work together with other stakeholders in order to realize technology transfer and to make the art of the new technology sustainable in the city. The office is responsible for the preparation of physical and financial

plan set up of training standards, preparation of different documents, as well as to ensure the transfer of knowledge and technology through the participation of youth and women (CPCO, 2010).

Besides, the office strives to enable Micro and Small Enterprises to acquire adequate vocations and experiences in cobblestone road construction development as well as to realize their full participation to reduce unemployment problem. The vision of the project is seeing cobblestone paved beautiful Addis by creating strong enterprises in chiseling and paving through effective utilization of local resources (CPCO, 2010).

2.11 Tasks and Responsibilities of the project

The project designs and develops the operational and mobilization manuals and ensure the implementation of these manuals on each site accordingly, coordinate the stakeholders in recruiting trainees and engagement of enterprises in chiseling and paving on contract basis, provide and facilitate all necessary logistics, trainers and financial resources for the project (CPCO, 2010). The project covers all sub-cities of Addis Ababa and includes pedestrian and vehicle roads, condominium Villages, recreation areas and parks, organizations and residential areas.

2.12 Achievements

Starting from the end of Dec. 2002 E.C 31,612 unemployed youth and women successfully completed training. From which, 811 operators have been trained in paving, While 30,801 of them are chiselers. Currently, 192 operators are on training in TVETs. In addition to this 1,311 of quarry

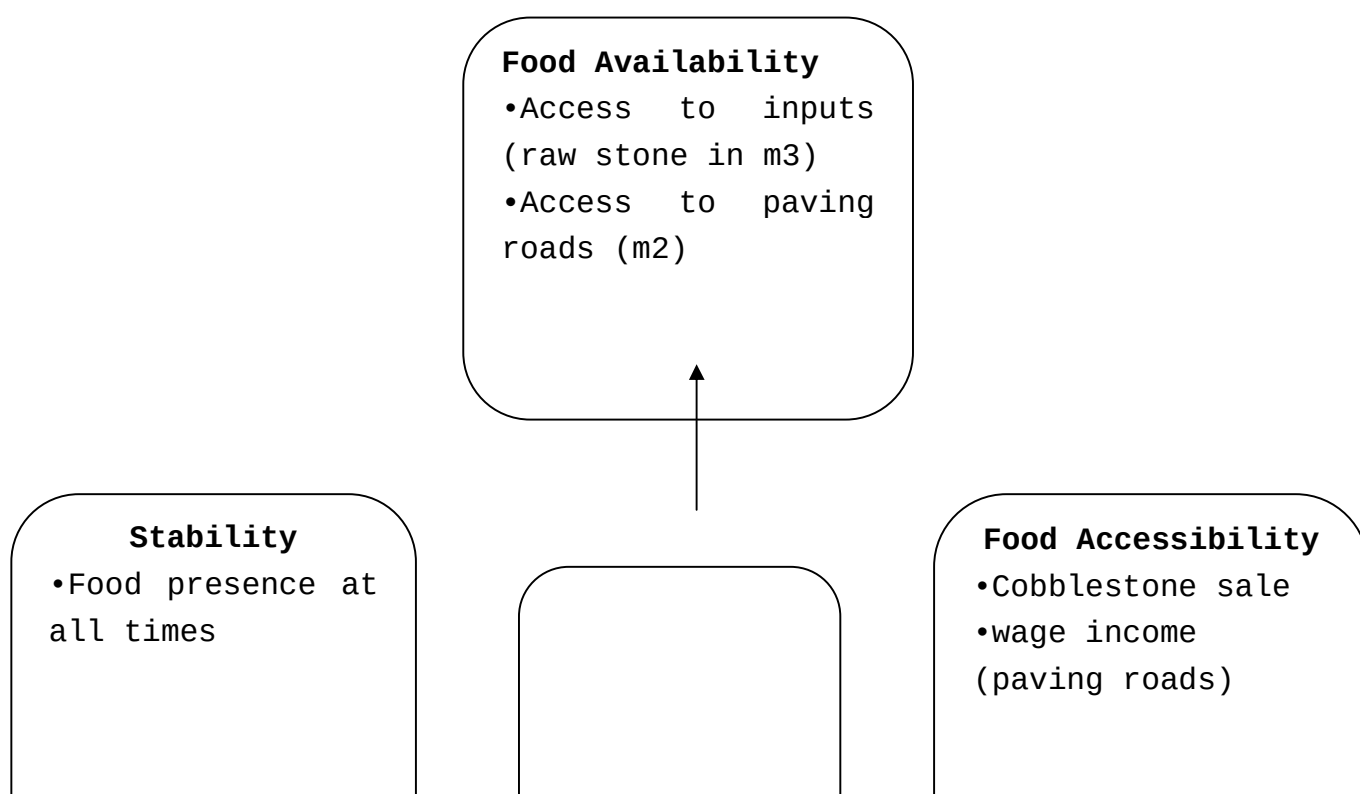
men have been engaged in production of raw stones (CPCO, 2010).

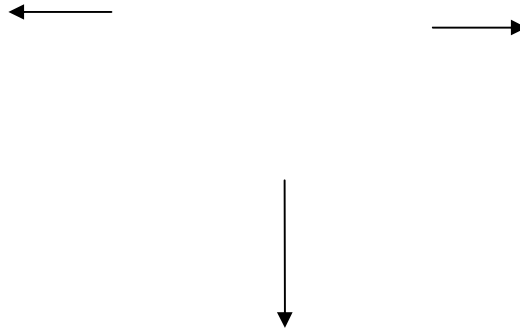
Right after the completion of training, cobblestone enterprises are invited to sign the contractual agreement with the Addis Ababa City Road authority (AACRA) on piece rate basis. So far, 17,697 members organized in 593 enterprises have benefited from this contractual agreement.

As a result of the market linkage created for cobblestone enterprises, 78,218.228m² with 9.58 km length of pedestrian and vehicle roads and taxi terminals have been covered with cobblestone.

Similarly, in Gulele sub-city there are 910 beneficiaries from cobblestone enterprises who earn their income and try to secure their households in accessing, utilizing, and ensuring food security (Figure 2.1).

Figure 2.1: Conceptual frame work for the contribution of cobblestone to HH food security





The above conceptual framework of food security tries to relate the cobblestone household food security condition with food security pillars. A well-defined conceptual framework provides a broader context, which is critical for food security indicators, supporting the designing of data collection system, and analytical plans. Achieving adequate food security is viewed as a critical step towards more general development objectives of poverty alleviation and sustainable livelihood based economic growth.

It is possible to define the dimension of food security based on the following four important pillars (USAID, 2005):

- Food *availability*;
- Food *access*;
- Food *utilization*; and
- Food *stability*

Food availability is achieved when sufficient quantities of food are consistently available to all individuals within a country. Such food can be supplied through household production, other domestic output, commercial imports, or food assistance.

Food access is ensured when households and all individuals within them have adequate resources to obtain appropriate foods for a nutritious diet. Access depends on income available to the household, on the distribution of income within the household, and on the price of food.

Food utilization is the proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water, and adequate sanitation. Effective food utilization depends in large measure on knowledge within the household of food storage and processing techniques, basic principles of nutrition and proper child care, and illness management.

Stability is continuous flow and availability of food either through the quantity stored or from external sources.

CHAPTER THREE

RESEARCH METHODOLOGIES

3.1. Description of the study area

3.1.1 Geography

This study was undertaken in Gulele sub-city, which is one of the ten sub-cities of Addis Ababa, Ethiopia. The sub-city has ten *weredas* with a total area of 30.18 K.m (GSC). The sub-city is bordered by Oromiya regional state in the north, Arada and Addis Ketema sub-cities in the south, Kolfe Keranio in the west, and Yeka sub-city in the east.

3.1.2 Demographic Features

The sub-city accounts for 10.91 percent of the total population of Addis Ababa. It is a home to about 284,865 (Female=147,175, Male=137,690) people and is among the poorest cities in Addis Ababa (CSA 2007). It is estimated that, more than 55% of the total population in the sub-city are engaged in the informal sector (GSC, 2011).

3.1.3 Socio-economic Features

According to the sub-city Health office, the health coverage of the town is 53%. As regard to the health facilities, the sub-city has 1 hospital, 3 health centers (one NGO), 3 health clinics (2 NGO), and 23 private clinics.

As far as the Education sector is concerned the sub-city has 150 functional schools (Table3.1). There are 65156 students enrolled in different schools since 2011.

Table3.1. Number of Schools in the Sub-city

School	GO	Public	Private	NGO	Religious	Total	No. of Student		
							Male	Female	Total
KG	4	10	52	3	2	71	5956	5585	11541
1 st cycle	12	7	26	4	2	51	17086	19152	36238
2 nd cycle	4		9	2	1	16	4292	4477	8769
Preparatory	2		4	2	1	9	3406	4089	7495
College	1		2			3	638	475	1113
Total	23	17	103	11	6	150	31378	33778	65156

Source Gullele sub-city Education Office 2011:

Micro and small enterprise sector employment is the dominant economic activity in the sub city, especially for the poor. According to the data from MSEs office about 19,895 unemployed have the opportunity to engage themselves in different MSEs activities. In addition 20,705 people (9,382 recruited and 11,403 contracts) are beneficiaries from the program. 8,629 MSE operators have got different types of training to empower for better performance.

As regard to market, about 409 enterprises have sold their products through the market linkage created for 11,029,884 Br. In addition 3410 MSEs have access to credit for 18,362,785 Br. As saving is concerned 6, 737, 667 is saved by MSEs operators in the sub-city.

3.2. Research Methodology

3.2.1 Sampling procedure

The study employed systematic random sampling to select the required sample. According to the data obtained from cobblestone office in the sub-city, there are 910 cobblestone workers. As a rule of thumb 10 percent of the total populations which are 91 in number were selected for the study purpose.

3.2.2 Methods of data collection

In order to study the contribution of small scale enterprises to urban household food security both primary and secondary data collection methods were employed.

3.2.2.1 Primary source of data

Primary data was collected through various techniques of data collection method such as survey, key informants interview, focus group discussion and observation of cobblestone chiseling and paving activities. Two cobblestone workers were selected as case studies.

Cobblestone workers survey

To generate quantitative and qualitative information from cobblestone enterprise operators, a survey was undertaken using questionnaire. For this purpose 4 small scale enterprise experts working in Gullele sub-city MSE office

were selected and trained as on the procedures to follow while conducting interviews with respondents. Half day training was given to make the questionnaire clearer.

Key informant interviews

To have deep understanding of the contribution of cobblestone enterprise to improve the operator's livelihood, in-depth interviews were employed with

cobblestone supervisors, Trade and Industry Sector, Cobblestone project office who are all found in Gullele sub-city and regional MSE offices.

Focus group discussion

Focus group discussions were conducted to clearly understand the contribution of cobblestone enterprise to enhance the livelihood security of the study area and the challenges faced by the members. The participants involved were from different age groups and both sexes. Two focus group discussions each comprising 8 members were held for the study purpose.

Observation of Cobblestone enterprises

Observation of cobblestone enterprises was carried out during the study period. This has provided a chance to observe activities performed by the members such as actual raw stone, cobblestone chiseling and paving. Information regarding people's perception, market availability, and infrastructural activities such as access to basic social services, human health posts and sources of water supply was obtained from personnel observation and by talking informally with the surrounding people.

3.2.2.2 Secondary sources of data

Secondary material on the subject of MSEs was reviewed to supplement the primary sources of information. Such information was obtained from books, journals, brochures, web sites, different government organization reports and strategies, and other relevant sources to enrich the general information related to MSEs.

3.3 Data Analysis

Once data collection was completed, responses were coded and entered into SPSS. Different display formats like percentages and charts were employed. Descriptive statistics were used to report both quantitative and qualitative data.

Food security analysis was made based on the household food insecurity access scale (HFIAS).

Based on a recall period of four weeks, there are nine occurrence questions prepared for each respondent to be answered by 'Yes' or 'No'(FANTA).

Each of the questions was requested with a recall period of four weeks. The respondent was first asked an occurrence question, that is, whether the condition in the question happened at all in the past 30 days. If the respondent answers "yes" to an occurrence question, then was asked to determine whether the condition happened was rarely, sometimes or often. But the frequency of occurrence question is skipped if the respondent reported the condition described in the corresponding occurrence question was not experienced (No) in the previous four weeks. To see how frequent the issue was happened an example is here below:

Example:

Q1. In the past four weeks, did you worry that your household would not have enough food? (0 stands for No and 1 for Yes).

0 = No (skip to Q2) this means the respondent did not worry about not having enough food for the last 30 days recall period.

1 = Yes this means the respondent was worried about not having enough food for the last 30 days recall period, (1) rarely, (2) sometimes (3) often. Therefore to see how frequent the issue was happened emanating from individual perception about food insecurity, a question was raised: How often did this happen? Then the respondent answered in the following order choosing one of the three;

1 = rarely (once or twice in the past four weeks)

2 = sometimes (three to ten times in the past four weeks)

3 = often (more than ten times in the past four weeks)

The nine Occurrence Questions developed by FANTA which are answered by the respondent on behalf of all the HH members are:

Q1. In the past four weeks, did you worry that your household would not have enough food?

Q2. In the past four weeks, were you or any household member not able to eat the kinds of foods you preferred because of a lack of resources?

Q3. In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?

Q4. In the past four weeks, did you or any household member have to eat some foods that you really did not want to eat because of a lack of resources to obtain other types of food?

Q5. In the past four weeks, did you or any household member have to eat a smaller meal than you felt you needed because there was not enough food?

Q6. In the past four weeks, did you or any household member have to eat fewer meals in a day because there was not enough food?

Q7. In the past four weeks, was there ever no food to eat of any kind in your household because of lack of resources to get food?

Q8. In the past four weeks, did you or any household member go to sleep at night hungry because there was not enough food?

Q9. In the past four weeks, did you or any household member go a whole day and night without eating anything because there was not enough food?

Accordingly, the Responses were categorized into:

1. HFIA -related conditions
2. HFIA -related domains
3. HFIA- scale score
4. HFIA prevalence

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter presents the findings of the research. The collected data are organized, presented, discussed and analyzed based on the objectives set qualitatively and quantitatively. The chapter starts with background information of the respondents and explains their motivation to participate in the cobblestone enterprise. The income implication of the cobblestone and its contribution to HH food security is analyzed thoroughly using HFIAS tool. At the end the problems observed among the members are discussed.

4.2 Background Characteristics of Respondents

The study reveals that both sexes are engaged in cobblestone chiseling and paving. In the sample the number of females working in cobblestone enterprise is higher than that of males. This is very interesting view of the physically demanding nature of the work. In addition, there is a remarkable difference in the enterprise participation of youths and the elderly people.

Table 4.1 indicates that female respondents account for 51.6 percent while male constitutes the remaining 48 percent. The cobblestone project coordination office ensures that the participation of women is 50 percent in chiseling and paving (CPCO, 2010).

Both female and male youth represent the highest number covering 68 percent of the sample. From Table 4.2, it can be observed that most of the cobblestone enterprise is undertaken by youth workers, while only 18.7 percent are more than 36 years old.

Table 4.1 Types of Enterprise by Sex

Sex	Frequency	Percent
Male	44	48.4
Female	47	51.6
Total	91	100.0

An examination of the age of the respondents' indicates that their ages lie within the range of 20-40. As shown in Table 4.2, nearly 91 percent of the sampled entrepreneurs are found in the age group of 20 to 40 years. Only about 9 percent are found within the age range of 41-45 years. One can see that, there is a sharp decline in the involvement of operators in the sector as they become older looking at their age, we can also state cobblestone workers represent the most productive sector of the society. It seems, therefore, cobblestone enterprise provides livelihood to the most productive and vibrant segment of the society which is of paramount importance for the economic development of the country.

Table 4.2: Distribution of Respondents by Age Group

Age group	Frequency	Percent
15-20	9	9.9
21-25	27	29.7
26-30	27	29.7
31-35	12	13.2
36-40	7	7.7
41-45	9	9.9
Total	91	100.0

Regarding their marital status, nearly half of respondents are married, while 34 percent, 6 percent, and 3 percent respectively are single separated and divorced. The rest are widowed (Table: 4.3). It was indicated earlier that the largest proportion of the respondents are between 20-40 years of ages. This age bracket is the one in which many people are expected to get married. It is also the time at which many men and women are expected to bear children. Hence, the information on the age and marital status of the respondents suggest that the majority of the respondents have family, a situation which forces them to assume responsibility to provide a livelihood support.

Table 4.3: Respondents marital status

<i>Marital status</i>	<i>Frequency</i>	<i>Percent</i>
Single	31	34.1
Married	44	48.4
Separated	5	5.5
Divorced	3	3.3
Widowed	8	8.8
Total	91	100.0

A good proportion of cobblestone enterprise workers had attained 2nd cycle education which comprises 33 percent of the sample. From Table 4.4 one can see that 25 percent have completed 1st cycle. In addition, about 15 percent and 4 percent of them have attended secondary (9-10) and preparatory (11-12) education respectively. Another 15 percent have attended Technical Vocational Education

Training (TVET). The rest 6 percent are illiterate who cannot read and write.

Table4. 4: Distribution of Respondents by Educational Attainment

<i>Educational level</i>	<i>Frequency</i>	<i>Percent</i>
Can't read write	6	6.6
1st cycle(1-4)	23	25.3
2nd cycle(5-8)	30	33.0
Secondary(9-10)	14	15.4
Preparatory(11-12)	4	4.4
TVET	14	15.4
Total	91	100.0

In literature, there are two approaches regarding the emergence and expansion of micro enterprises, and the increase in the number of people engaged in such activities. One approach views this as an outcome of improved opportunities for people (including the poor and disadvantaged) to participate in ways that transform their livelihood. The second approach, in contrast, states it as an indication of the failure of an economy to provide jobs, compelling people to take “refuge in activities that

provide only minimal subsistence and support" (Liedholm and Mead, 1999; cited in Wogari, 2010.)

4.2.1. Prior Employment Background

To capture the justifications of the government policy in designing the cobblestone enterprises, questions were presented to the respondents whether they were really unemployed or not. The result, on the contrary, reveals that 29.6 percent were unemployed. As shown in Table 4.5, 26.6 percent were daily laborers while 18 percent were students of which 4 percent were preparatory and 14 percent from TVET. Some 19 percent were running other businesses, like weaving, woodwork, petty trading. Most female daily laborers were engaged in selling wood bringing from far places before starting the enterprise.

Table 4.5: Previous occupation of respondents

<i>Previous occupation</i>	<i>Frequency</i>	<i>Percent</i>
Student	18	19.8
Government employee	2	2.2
Daily laborer	25	27.5
Run another business	17	18.7
Unemployed	27	29.6
street children	2	2.2
Total	91	100.0

4.2.2 Enterprise characteristics

Enterprise characteristics can be explained in terms of ownership status, form of management, work premise, number of employees and others.

According to proclamation No.147/98 cooperative members are owners of their association and all have equal rights. Several other studies have revealed that micro enterprises

are often owned and run by sole owners (Gebrehiwot and Wolday, 2006:8).

However, all cobblestone enterprises in the study are characterized by group ownership. The study indicates that cobblestone enterprises in the sample are managed by elected owners.

There is a common work premise at the site of cobblestone production. All cobblestone workers chisel raw stones in their shade around the quarry. They obtained their working premise freely from government without any payment, but they prepare their working area by constructing with local materials to protect themselves from rain and sun light.

Moreover, city bus is usually arranged for two way trip (Monday-Saturday) with minimum special cost. This is one of the government's subsidies to the workers for their cost minimization. For cobblestone pavers there is no fixed working space since their job is performed in different sites in the city. This in turn has increased the workers transportation cost and decreased their work efficiency.

Many of the female respondents working in paving cobblestone said, even though it is a means of income, the working condition is difficult because of health problems that may arise due to biological reasons.

As stated earlier, cobblestone workers are organized in two types of activities: chiseling and paving. All workers are trained with the arrangement of Gullele sub-city cobblestone project office.

As training is concerned, trainers in chiseling and paving are invited by the project office. Allowance is paid for both trainees and trainers for the days they participate on training and duration of trainings. The daily allowance is

Br 30 for trainees and Br 70 for trainers. The duration of training for chiseling is 21 days, while for paving 36 days (18 days in TVETs and 18 days in real sites).

To manage and guide the work properly, standards are set both for paving and chiseling;

For Chiseling – each trainee is required to produce;

- 5 cobbles per day in the first three days and 7 cobbles per day in the next three days of the first week.
- 10 cobbles per day in second week,
- 15 cobbles per day in third week,

For paving – every trainee is required to pave;

- 2M² per day, during the first week,
- 4m² per day, during the second week and,
- 5m² per day during the third week

At the end of the training, trainees who have accomplished properly according to the requirement will sign the contractual agreement with AACRA for further cobblestone production of and paving roads.

The data obtained from respondents (Table 4.7) shows that 35 percent of the respondents were organized in paving activities while 65 percent were in chiseling. For both categories inputs such as meter were provided by cobblestone project office while the raw stone and cobbles are by Addis Ababa City Road Authority (AACRA).

Table 4.6: Respondents by Type of Cobblestone Activities

<i>Type of activity</i>	<i>Frequency</i>	<i>Percent</i>
Paving	32	35.2
Chiseling	59	64.8

Total	91	100.0
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Cobblestone chiseling



Cobblestone paving

After producing cobbles and paving roads quality control takes place to ensure the quality production of cobblestones, big stones and curbstones as well as the standard of pavements by supervisors in the site. The quality control techniques for chiseling during training include quality of the raw material and quality of chiseled stone (90 °), where as for paving focuses on the pavement layer dimension, pavement layer's strength, slope of the surface and level of the surface(CPO, 2011).

4.3. Motivation of Respondents for Participation in Cobblestone Enterprise

The Addis Ababa City Administration Cobblestone project office has made a great effort to motivate unemployed youth and women including disabled people who can work, through different mechanisms such as preparing brochure, pamphlets, and posters. In addition, the office uses different conferences for the purpose of awareness creation and promotion work. The other way which makes people to get involved in this enterprise was inviting cobblestone workers to share their experience and to witness the fact about changes in their life (key informant Simret).

Using the above mechanisms the office has registered a lot of people, and trained them in both chiseling and paving activities.

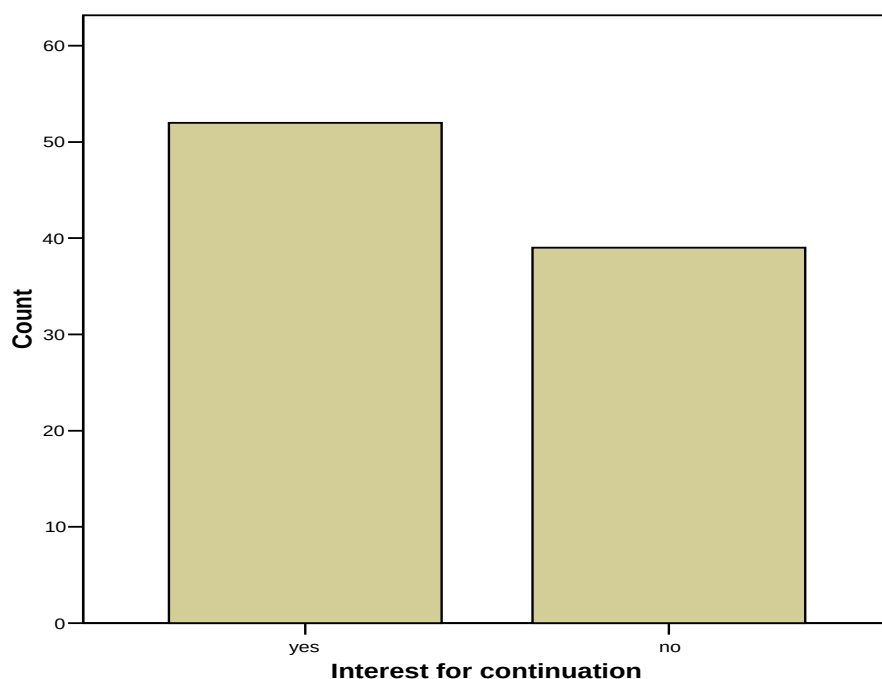
Table 4.7: Reason for Respondent's Engagement in Cobblestone Activities

<i>Motivation</i>	<i>Frequency</i>	<i>Percent</i>
Income diversification	2	2.2
Seeking employment	43	47.3
To escape poverty	16	17.6
Business profitability	30	33.0
Total	91	100.0

To capture the motivation of respondents, a question was asked, what motivated you to join the enterprise? As it can be observed from Table 4.7 a good number of the respondents (47.3 percent) were motivated by the reason of being unemployed. Business profitability contributed to 33 percent of the sample, while 17.6 percent mentioned the desire to escape poverty in the family as their motivation.

In spite of the hard work requirement, cobblestone enterprise is a means of income generation especially for the poor who have no income for startup capital. Figure 4.1.indicates that 43 percent of the sample did not intend the tendency to work anymore in the enterprise. The other 56 percent have desire to work in the enterprise because it is their means of income, but they also affirm that they have no other alternative.

Figure 4.1: Tendency of continuation in the project



4.3.1. Reasons for Staying in the Cobblestone Enterprise

There is an observable change in the lives of cobblestone workers. However, only 56 percent of the respondents are inclined to stay working in the enterprise. Respondents who have tendency of leaving were asked for their reason not to continue the work. Table 4.8 summarizes the reasons for continuation or termination. 30.8 percent of the respondents intend to change their business from cobblestone.

Table 4.8: Reasons for Staying in or leaving Cobblestone Enterprise

<i>Reasons</i>	<i>Frequency</i>	<i>Percent</i>
Unsuitable working condition	8	8.8
Energy/labor demanding	1	1.1
Health problem	3	3.3
Need to change to another business	28	30.8
Continue For income	51	56.0

generation		
Total	91	100.0

Even though, only 8.8% respondents answered unsuitable working condition, personally it was observed that the working condition was not suitable, it was exposed to rainfall and sun light and also since they sit down the whole day bending their legs, they may be exposed to different health problems such as kidney. There is no adequate water and no latrine.



Unsuitable working condition at legefotafo site

4.4. Income and Asset Implications

Financial capital is one of the key assets playing a crucial role in almost every livelihood activity in urban centers. Access to finance serves at least for two important purposes in the development of micro enterprises. One is it helps start the business, while the other is that it enables to run it, serving as a working capital (Wogari, 2010).

Proclamation No 147/98 states that every member of small scale cooperatives should contribute some amount of money for registration and should at least buy one share to start the business.

In this study it is observed that the source of initial capital for members of cobblestone enterprise is only their willingness to work. The materials are provided by cobblestone project offices, the raw stone for cobblestone chisellers and the chiseled cobblestone for pavers are distributed by Addis Ababa City Road Authority with out any

initial down payment. However the working capital is given on credit on group basis. This opportunity has created to large number of employment in cobblestone enterprise, the poor in particular.

The result from the study (Table: 4.9) shows that 44 percent of cobblestone enterprise workers did not have any income source or had no capital prior to their engagement in the enterprise.

Table 4.9: Respondents monthly Income Reports before and after starting the cobblestone enterprise

Respondents Monthly income	
<i>Before</i>	<i>After</i>

<i>Income</i>	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
None	40	44.0	-	-
200-400	25	27.5	-	-
500-600	10	11.0	-	-
700-800	14	15.4	29	31.9
900-1000	2	2.2	44	48.4
2000-2500	-	-	18	19.8
Total	91	100	91	100

Almost all respondents are now receiving better incomes as a result of working in the cobblestone enterprise (Table 4.9). According to the respondents the highest income was 1000Br and the lowest 700 Br per month. However the research identifies that the minimum monthly income of the respondents was 1000 Br. This was exposed from cross checking and triangulation techniques by questioning monthly expenditure of the respondents.

One of the indirect questions for income assessment was asking how much they spent for other expense per month other than food (Rent, transport cost, electric city, cooking fuel, water and sanitation). The expenditure information identifies that the minimum expense of a respondent for one month was found to be 300 Br, while the highest amount of income was Br 1080 with an average income of Br 501. (Table4:10). Therefore when the minimum monthly income and the minimum expenditure is summed up, the minimum monthly income of a respondent becomes 1000Br.

Table 4.10: Monthly Expenditure of Respondent

<i>Statistics</i>	<i>Value</i>
Maximum	1080
Minimum	300

Average	501
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In addition the income assessment by the project office on November 2010 shows that, the highest cobblestone production at *legetafo* site was more than 100, the average was 60 and the minimum cobblestone production was 30 per day. The cost for one cobblestone is Br 2.27. A person with 30 cobbles earns, $30 \times 2.27 = 68.10$ Br per day. Therefore if one can work for 24 days in a month he can earn $68.10 \times 24 = 1,634.40$ Br per month, while the highest and the average will be Br 5448 and Br 3268.80 respectively, if there is available raw stone on time. Moreover, there is a great competition among members to produce more cobblestones in order to increase their income and to change their business

Case study 1: Livelihood Income and Motivational Factors

My name is Belachew Smeneh. I am a 26 years old youth with an educational level of 10th grade, and not married. I have started working in cobblestone enterprise which is labeled as "Anabist" enterprise in April 2010. Before starting this enterprise, I had been earning a living on wood work at private wood and metal producer.

I was motivated to start cobblestone enterprise since I was in a continuous dissatisfaction with my previous occupation not only it paid me very little, but also I spent much time without job because the owner does not allow performing any duty due to many reasons, such as holidays.

I was not able to work to the extent that I have interest to get money. On average I used to earn about 600 Br per month which was very less than my needs. I decided to have other

Although some left because they undermined the occupation, and unable to resist unsuitable working conditions the above case study gives an important insight of the income and motivational factor for the profession.

4.4.1. Current saving

Policy makers are exploring and experimenting with new antipoverty strategies to improve the wellbeing of the poor, although no single comprehensive strategy has yet emerged, one of the many strategies being explored is the promotion of self-employment for the poor, mainly through micro enterprise programs (MEPs). The theory behind MEPs is simple: if poor people who have a propensity to self-employment could be helped to access affordable small-business loans, grants, small-business training, savings services, and support, they would be able to start, expand, and strengthen their micro businesses. Such assistance might eventually help to move them out of poverty (Fred M. and Michael Sherraden).

Although Cobblestone enterprise is a recent initiative, the workers have saved some amount of money for their future livelihood. The type of saving they are involved in is voluntary saving.

Table 4.11: Whether they have started saving or not

<i>Started Saving</i>	<i>Frequency</i>	<i>Percent</i>
Yes	77	84.6
No	14	15.4
Total	91	100.0

The Addis Ababa Cobblestone Project Coordination Office disclosed that the cobblestone production sector has directly benefited more than 18 thousand citizens ever since its implementation began in the city. Workers in the sector have also been able to save up to 1.5 million Birr though they do not state their income (News Addis, 2011). The study (Table4.11) also reveals that 84.6 percent of respondent have started saving, while 15.4 percent have not yet started saving due to different reasons.

Recently, Addis Ababa credit and saving institution has purposely opened sub office in the production area at *legetafo site*, and this will encourage workers to save at the spot when they receive the payment.

Table 4.12: Current own income save

<i>Income saved</i>	<i>Frequency</i>	<i>Percent</i>
None	6	6.6
1000	32	35.2
2000	16	17.6
3000	19	20.9
4000	4	4.4
5000	5	5.5
7000	7	7.7
10000	1	1.1
24000	1	1.1
Total	91	100.0

Saving money is a form of self-insurance that can be drawn from individuals or group members either voluntary or compulsory. Majority of respondents (35.2%) have saved 1000. Some (20.9) saved Br 3000 while others 4.4 percent saved as much as 4000 Br. As shown in Table 4.12, 5.5 percent of the respondents saved Br 5000 and 7.7 percent saved Br 7000. The rest 2 percent saved Br 10000 and 24000.

4.4.2. Respondents Sources of Income

Assessing the contribution of cobblestone enterprise to enhance urban food security was the main objective of the study. Hence the income source of the members should be analyzed whether it is only from cobblestone enterprise or from other additional sources of income.

As table 4.13 shows 44% of the sample respondents have two income sources, while 39.6 % have one which is from

cobblestone. The rest 16.5% have more than two income sources for their livelihood.

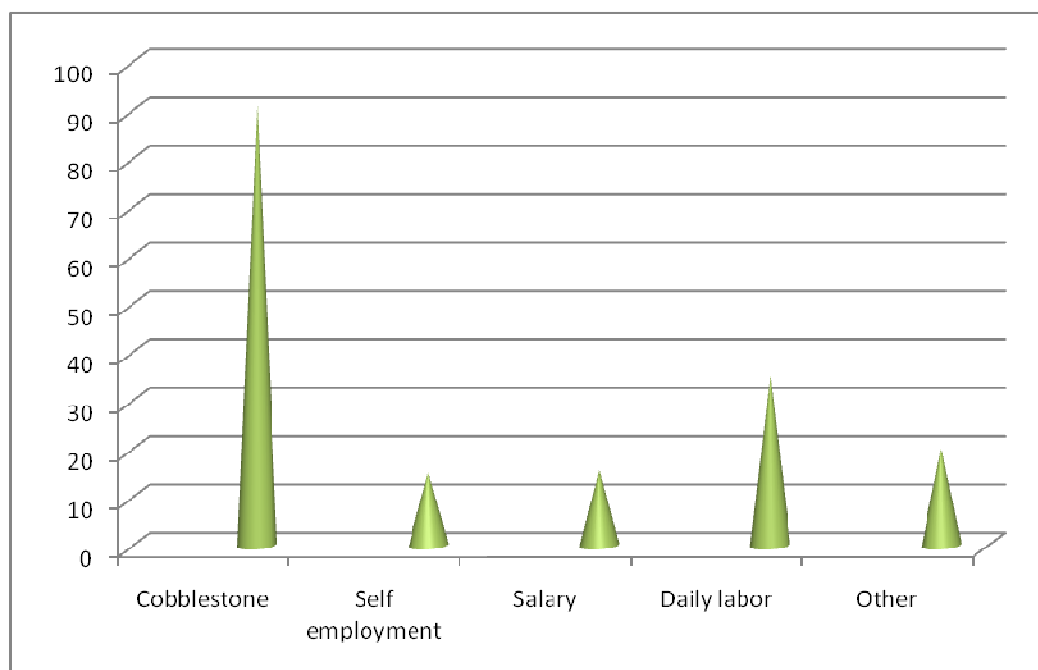
Table 4.13: Current Household income Source

<i>Number of Income source</i>	<i>Frequenc y</i>	<i>Percent</i>
One	36	39.6
Two	40	44.0
More than two	15	16.5
Total	91	100.0

The income sources were, from cobblestone, daily labor, self employment, salary and others such as baking *enjera*, watching children and washing clothes.

Even though the result indicates (Figure 4.2) that 60.4% HHs have more than one income sources, 85% of the total income is from cobblestone production either chiseling or paving.

Figure 4.2 Income Sources of Respondents



4.4.3. Income expenditure for food consumption

It is expected that people living in developing countries spend most of their income for food consumption. This is also true for the sample respondents. As shown in Table 4.14, the majority of the workers spend their income on food. More specifically, 2.2% of the respondents spend 30% of their income on food; whereas, 34.1% of them use 70% of their income for food consumption. Moreover, the increasing living standard of the current market condition has a contributing impact as was found from the in depth analysis of the group discussion results.

Table 4.14: Income Expenditure for food consumption

<i>% Income</i>	<i>Frequency</i>	<i>Percent</i>
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30	2	2.2
40	15	16.5
50	15	16.5
60	28	30.8
70	31	34.1
Total	91	100.0

4.5. HFIAS measurement tool as an indicator of the respondent's food security

In order to analyze the contribution of cobblestone enterprises in improving urban household food security, the Food and Nutrition Technical Assistance Project HFIA measurement tool was applied. According to FANTA, there are four methods to assess the food insecurity situation of a given target population within 30 days recall period. Accordingly, these methods are applied to assess the food security situation of the sample respondents.

4.5.1. HFIA- related conditions

These indicators provide specific, disaggregated information about the behaviors and perceptions of the surveyed HHs. It presents the percent of HHs that responded affirmative to each question, regardless of the frequency of the experience. Thus, they measure the percent of HHs experiencing the condition at any level of severity. Each indicator can be further disaggregated to examine the frequency of the condition across the surveyed HHs (FANTA). In this case, the respondents household experiencing the frequency of no food eat was assessed as follows:

Frequency of "No food to eat =

Number of HHs with response =1 to Q7×100 =

Total number of HHs responding to Q7

$\frac{10}{91} \times 100 = 10.99\%$

91

In this study 10 respondents have experienced the frequency of no food to eat within the 30 days recall period. These groups have faced shortage of food for more than one to ten times within the four weeks interval.

Table 4.15 shows 4.4% respondents have run out of food for once or twice and 4.4% of them experienced three to ten times. The rest 2.2% face the problem of no food to eat more than ten times in one month recall period, while 89% of the respondents have food to eat because they have income or resource for their livelihood. The ten respondents were those who have been engaged in the enterprise 2 months prior to the interview.

Table 4.15: Frequency of No Food to Eat

<i>Occurrence</i>	<i>Frequency</i>	<i>Percent</i>
None	81	89.0
once or twice	4	4.4
Three to ten times	4	4.4
More than ten times	2	2.2
Total	91	100.0

4.5.2. HFIA- related domains

This provides summary information above the prevalence of HH experiencing one or more of the three domains reflected

in HFIAS, insufficient quality & insufficient food intake. For instance, insufficient food intake or quality (includes not preferred and limited variety) can be measured as:

$$\frac{\text{\# of HH with response 1 to Qs2 or 1toQs3 or 1to Qs 4}}{\text{Total \# of HH responding to Qs 2 or Qs 3 or Qs 4}} \times 100$$

$$\frac{67+81+4}{91 \times 3} \times 100 = 55.67\%$$

The HFIA- related domains indicates that the HH members who are suffering by eating monotonous and not preferred foods. Based on to the proxy indicator and the perception of respondents, the study reveals about 55.67 percent of the respondents were eating insufficient food quality for the 30 days recall period.

4.5.3. HFIA-scale score

According to FANTA HFIA-scale score measures the degree of food insecurity (access) in each HHs for the last 4 weeks. For this, frequencies of occurrence responses are clues. Over all, (9), HFIAS questions, max. Score is 27 (all respondents responded "usually" or "often" to each domains or variables) while 0 is minimum score (all respondents responded as "no" or "0" for each questions related with three domains or variables, that is rarely, sometimes and often.

For this, the higher HFIAS, the higher severity is and the lower the HFIAS, the lesser the severity is to be. Then, average HFIAS is calculated using the Household Scores method as follows:

Average HFIAS score =

$$\frac{\text{Sum of HFIAS in the sample (answered by 'yes' for an occurrence question)}}{\text{\# of HFIAS score (HH) in the sample}}$$

Q1a+Q2a+Q3a+Q4a+Q5A+Q6a+Q7a+Q8a+Q9a

Number of HFIA score (HH) in the sample

$$\frac{613}{91} = 6.74$$

91

The result obtained from HFIA access scale score shows that the average calculated scale score is nearer to 0 than to 27, therefore according to FANTA HFIA tool the food insecurity situation of sample respondents is moderately food insecure.

Respondents were asked how they perceive the food security situation by their own view. The result obtained from Table 4.18, indicates that 78 percent from the total think that they are secured, while 22 percent are not.

Table 4.19 below shows the number of meals per day before starting enterprise. The response from majority of respondents was that they do have three meals per day even before starting enterprise.

4.5.4. HFIA prevalence

HFIA prevalence provides highly specified and disaggregated information about the behaviors and perceptions of the surveyed population. It also deals with measuring population in terms of percentage in each household experiencing the condition at any level of severity (FANTA.2007).

Based on HFIA prevalence (figure4.5) the result shows that 9 respondents were found to be food secure, while 55 were mildly insecure. The rest 27 respondents were moderately

insecure for the past 30 days recall prior to the interview.

Figure 4.3: Frequency of HFIA Prevalence of Respondents

Questions	Frequency		
	<i>Rarely</i>	<i>Sometimes</i>	<i>Often</i>
1a	21	12	0
2a	9	39	29
3a	13	28	40
4a	16	10	8
5a	14	20	4
6a	14	11	3
7a	4	4	2
8a	3	3	0
9a	1	1	0

	Secured
	Mildly insecure
	Moderately Insecure
	Severely insecure

Food secure households

These are food secure household groups experience none of the food insecurity conditions. These conditions are (1) Anxiety and uncertainty about the HH food supply, (2) Insufficiency of quality (include variety and preferences

of the type of food), (3) Insufficiency food intake and its physical consequences, or just experiencing worry, but once or twice (FANTA).

Mildly food insecure households

This HH group worries about not having enough food, unable to eat preferred foods and eating monotonous diet rather than desired and/or some foods considered undesirable, but rarely. But it does not cut back on quantity nor experience any of the three most severe conditions (running out food Q7, going to bed hungry Q8 and going over a day or night without eating Q9).

Moderately food insecure households

A moderately food insecure HHs sacrifices quality more frequently by eating monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity by reducing the size of meals (Q5) or number of meals (Q6) rarely or sometimes. But it does not experience any of the three most severe conditions (Q7, Q8, Q9).

Severely food insecure household

A severely food insecure HHs has graduated to cutting back on meal size or number of meals often, and/or experiences any of the three most severe conditions, even as frequently as rarely. In other words, any HH that experiences one of these three conditions even once in the last four weeks is considered severely food insecure (FANTA).

Respondents were asked how they perceive their food security situation. The result obtained from Table 4.16

indicates that 78 percent of the respondents think that they are secure, while 22 percent are not.

Table 4.16: respondent's perception of food security

<i>Response</i>	<i>Frequency</i>	<i>Percent</i>
Yes	71	78.0
No	20	22.0
Total	91	100.0

Table 4.17 below shows the frequency of meals respondents used to have per day before starting the enterprise. The response from the majority of respondents was that they used to have three meals per day even before starting enterprise.

Table 4.17: Respondents Meal per day before and after Starting Enterprise

<i>Respondents meal per day</i>				
<i>Meal per day</i>	<i>Before starting enterprise</i>		<i>After starting enterprise</i>	
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
Three times	39	42.9	66	72.5
Two times	35	38.5	11	12.1
Once	7	7.7	11	12.1
Other	10	11	3	3.3
Total	91	100	91	100

It is known that the meal frequency per day is different in every HHs consumption habit. The meal frequency can be one of the indicators of food security/insecurity for a HH since it implies access which is one of the four pillars of food security. The result from the study shows that before starting enterprise majority of the respondents (42.9%)

have three meals per day, while 38.5 percent have two. The other 7.7 percent subsist with one meal and 11 percent of the respondents were eating once and or sometimes stay with no food to eat the whole day (Table 4.17).

On the contrary, the study from after starting enterprise shows that 72.5 percent of the respondents have three meals per day, while 12.1 percent of them have two. 15% of the respondents have one meal per day and 3.3% persist. The result implies that there is a shift from two to three and from one to two as a result of working in the enterprise.

For all who said "I have three meals before and after starting enterprise", a question was raised, "Is there any difference in your food consumption as a result of working in the enterprise"? Their response was *"there is a big difference; since we are working and get income we have now a better food provision than before"*.

4.6. Observable livelihood changes of respondents

An attempt has been made to obtain information on changes observed as a result of increased income. Therefore it is of great importance to examine the role of income in this regard.

As indicated above some changes have observed in the lives of respondents while starting to work in cobblestone enterprise. The past history of the majority of respondents confirms that they have no income prior to the start of business, they were poor and unemployed. To see whether they exhibited changes, a question was raised to see the degree of transformation (Figure 4.5).

Members, while working in cobblestone chiseling and paving have achieved some changes in their livelihood. Accordingly, 40 percent of the respondents at a very good condition, 22 percent moderate, 20 percent good and the rest 8% are those who have two months of working time in the enterprise and have no idea for their food security status.

4.6.1 Asset creation

As regard to asset the respondents were asked to answer how much they have created asset while starting to work in cobblestone enterprise. The finding indicates that, 20 percent of sample respondents have acquired different type of assets. 25 percent were at moderate and 10 percent of

them lie at 10 percent. The rest 35 percent have no any asset obtained. The assets created were house furniture's such as, sofa set, bed, television, small gas stove, electric stove, DVD, refrigerator and mobile.

4.6.2 Able to send children to school

As indicated before 48 percent respondents were married of which 44 percent have bear children Table 4 18 indicates that, 26 respondents were able to send children to school in which there were 57 children who were attending schools. The result from the interview shows that 59 percent (figure4.4) of sample respondent were at a very good condition to send their children to school. Some of the respondents affirm that they pay 70 Birr per month per student.

Table 4.18: Beneficiaries Children Attended School

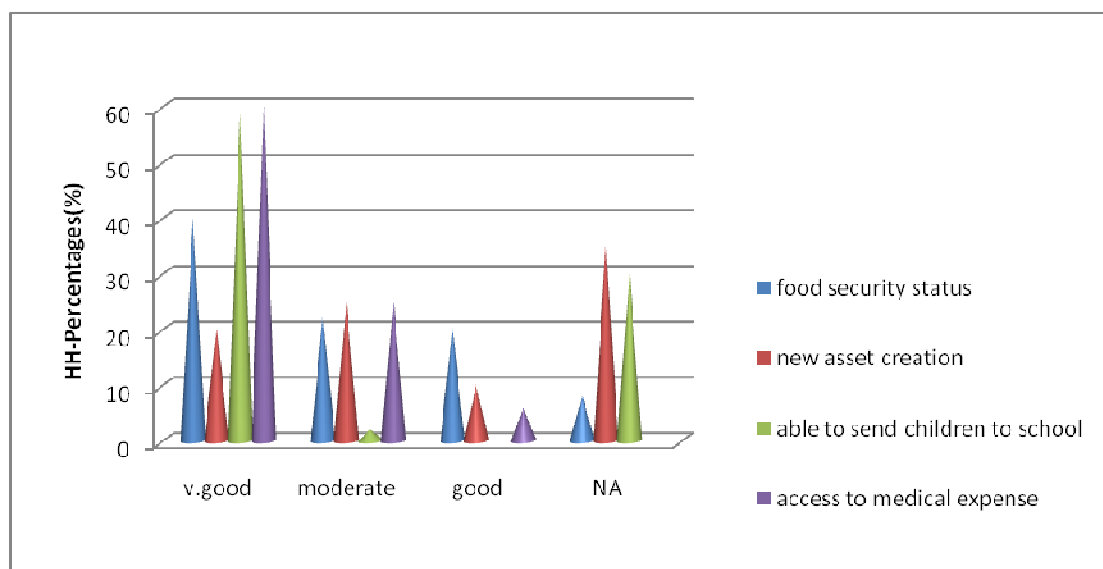
<i>Number of</i>	<i>Family</i>	<i>Number of</i>	<i>Total</i>
------------------	---------------	------------------	--------------

<i>respondents</i>	<i>size</i>	<i>children attend school</i>	
5	3	1	5
13	5	3	39
5	5	2	10
3	2	1	3
Total			57

4.6.3 Access to medical expense

Changes have observed while asking the access to medical expense. 60 percent of respondent were able to finance medical expense when a household member get sick. Some of them confirmed that they have paid about 2000-3000 Br for medical cases within six month interval. This was assessed during income expenditure interview.

Figure 4.4: Observed livelihood Changes of Respondents



4.7. Organizational Support

Organizations include various government offices, non governmental and private organizations that can have influence on the activities of micro enterprises by either enabling or constraining their access to various assets and the strategies they adopt.

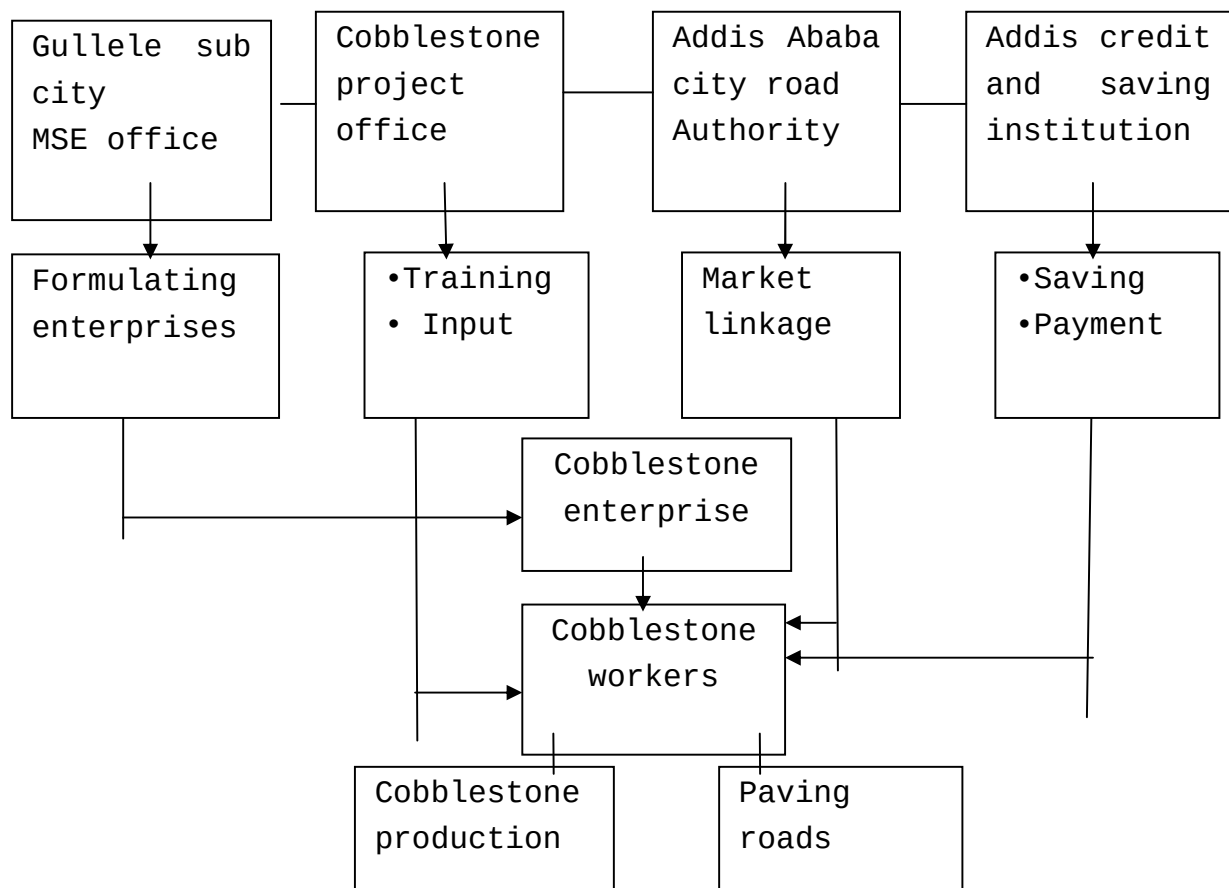
The federal Micro and Small Scale Enterprise Development Agency, Regional Micro and Small Scale Enterprise office, Addis Ababa cobblestone project, Addis Ababa City Road Authority Addis credit and saving, GSC Trade and industry are the major organization involved in the livelihood endeavor of cobblestone operators in the sub-city. There are NGOs working in the city, supporting other MSEs, but not cobblestone enterprises.

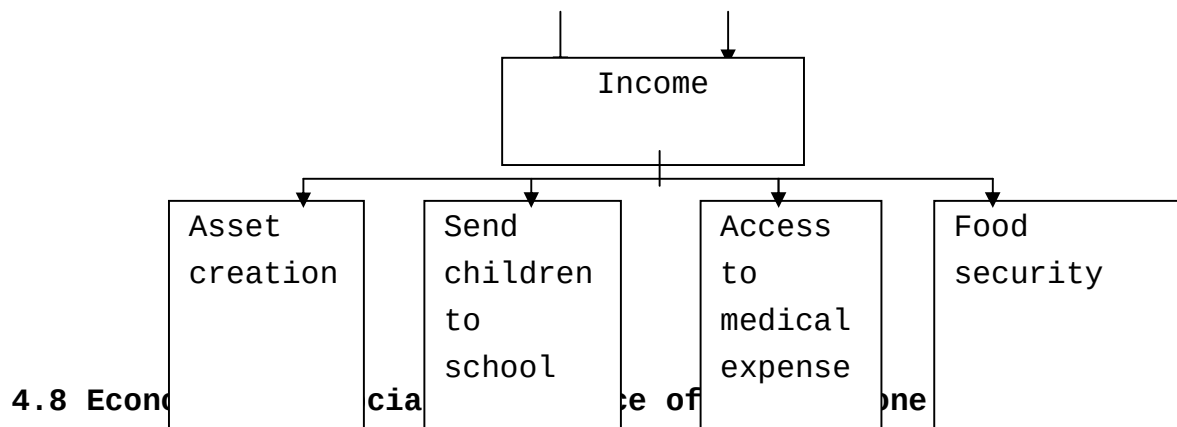
According to the group discussion, CPCO provides training in chiseling (in quarry sites) and paving (in TVETs) and facilitate working tools on credit that would be repaid. Moreover, it creates access to market linkage and it provides information, etc.

Addis credit and saving is facilitating their payment as well as encouraging them to save their money using different mechanisms, such as pamphlets (Group discussion).

AACRA is performing two way operations, providing raw stone for chisellers and transporting chiseled cobblestone to places where the pavers are working (Group discussion).

Figure 4.5: Channels of Stakeholders supporting to Cobblestone Enterprises





4.8 Economic and social contribution of the enterprise

The project has contributed to poverty reduction by providing employment to the unemployed youth and women. Many females are empowered as a result of their engagement in the enterprise.

Case study 2: The Role of Cobblestone to Women Empowerment

My name is Meskerem Haile. I am 41 Years old with educational status of 6th grade. My husband died ten years ago. Thus, I live with two children who are 14 and 11 years old. I have no assets with which to survive my family and to educate my children. I have no remittance from elsewhere, but I was serving in others' houses to win daily bread for my family, If not, I was collecting street garbage win the city during chastise of my life. I become victim of kindling. But since the last year, I incorporated in to the sub-city's cobblestone enterprise and reinsured my livelihood income source. Since then, I started to live the predictable life. I start at morning with high expectation of in come per day and turn to home with great happiness at noon. Thus, my children are perusing their education with sufficient materials. My household basic needs are fulfilled and I am saving the remaining income. Currently I have 10,000 Br in my account. Moreover, I have a chance to borrow money from Addis credit and saving institution for further business diversification.

Cobblestone project increases the paved road coverage of the city to enhance the attractiveness and beautification of the environment as well as the city. Roads paved with cobblestone are durable and need little cost for maintenance. Therefore it enables to save foreign currency and has a lower cost comparing with asphalt roads. As indicated earlier about 78,218.228m² roads has been covered by cobblestone. According to key informant Mr, Ybre, the payment for one meter square paved road is 167 Br, while for asphalt road is 670 Br.

4.9. Problems encountered

Cooperatives are organized and regulated under the Cooperative Societies Proclamation No.147/98 and Amendments No.402/2004. The proclamation includes seven principles which are internationally accepted. The 1st principle is 'Voluntary and Open Membership: voluntary implies that people cannot be forced to be co-operators, they must be given the opportunity to study and understand the values for which cooperatives stand.

These values are: self help, self responsibility, democracy, equality, equity, and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility, and caring for others.

As the information from GSC cooperative office, small scale cooperatives should be structured/formulated after the necessary training is set including the principles and values of cooperatives. Accordingly there is a bylaw which governs all members equally. In addition they are forced to

claim legal Bank account which to be facilitated with four members who are to be accountable to the enterprise to regulate the financial flow of the enterprise.

However, cobblestone workers are registered, organized and trained to chisel cobbles and to pave roads. The information from group discussion explains that the workers organized in cobblestone enterprises have no idea about cooperative principles and values. This gap has created an immense problem which as a result causes a number of youth to evacuate immediately after training and some of them after starting the business.

According to CPO the Selection Criteria to be registered in cobblestone enterprise includes, beneficiaries should be those who are committed to change their life by creating sustainable income. In addition they should be interested to contribute his/her share in alleviation the economic and social problems of the city (CPCO, 2010), while the information from key informants and focus group discussion shows that the reasons for evacuating include, some participants targeted to only short run daily allowance paid to training than long run engagement in the enterprise. Others who leave after starting the business were because of their disability to resist hard working condition. Others were those who cannot afford the transport cost due to the distance of the working area *legetafo* site.

Cobblestone chisellers buy 1m³ raw stone from AACRA with 65 Br to produce cobblestone. They produce according to the standard, 10x10cm which is recommended by AACRA. Based on the respondent's clarification the raw stone is not provided on time which resulting wastage of time and transport cost. In addition there is wastage of chiseled cobbles because of the required quality. The quality

assurance takes place at three stages, 1st by enterprise supervisor, 2nd by AACRA and 3rd by pavers while paving,

The problem faced by pavers is that, the input is often not available on time and the area given to be paved is very small. According to the respondents they sometimes return back to their homes when there is no work even though this happens sometimes. For pavers the quality assurance is based on the leveling of the area paved. As to the cobblestone workers the quality assurance for pavers is made by supervisors and AACRA either to accept or reject. Therefore all workers were complaining by saying *"the payment is not equivalent to our work"*.

Effective time utilization by workers is one of the key's to succeed the cobblestone business. Workers have no time to spent, rather than producing or paving. For example, respondents were not willing to lose any time for interview because the payment is based on cobble produced or paved area. Hence, the solution suggested was that the interview should take place while working in their place. These was challenging for interviewers due to noise and risk of being hit by fragmented stones.

There was difficulty while asking the HFIAS occurrence questions specially the preferred and limited variety, but through probing the problem was solved. Examples of probes used in refining questions with respondents are indicated in Table 4.21.

Table 4.19 Example Probes for Use in refining Questions with Respondents (Adopted from Frongillo et al., 2004)

Comprehension/ interpretation probes	▪ When I asked you about ...what were you thinking about? ▪ Can you tell me in your own words what this question mean? ▪ Examples: ▪ What does the phrase "eat preferred foods" mean to you? ▪ In your own words, can you tell me what 'not enough food' mean?
Recall probe	▪ How did you remember? For example, how did you remember that another HH member went to sleep at night hungry because there was not enough food?
Specific probe	▪ Why do you think that? For example, why do consider those foods as ones you really did not want to eat?
General probe	▪ How did you arrive at that answer? ▪ How hard was that to answer?

4.10 Weakness of HFIAS Measurement

Although HFIAS measurement tool could give an indication of food security status, its greatest weakness was the fact that it could not point to the cause/s of food insecurity. As Anne 2010, revealed on his study, the time frame of 30 days is a long period to recall in reference to food consumed/ prepared on a daily basis since it is challenge especially for people whose income in not pegged to 30 days. Hence, breaking it down to at least two weeks but ideal seven days is easier to recall because many household have a program for one week menu. In addition the measurement should be applied in normal conditions, festivity and ceremonies can distort the actual findings.

CHAPTER 5

Summary, Conclusions and Recommendations

5.1. Summary

This study has dealt with the contribution of cobblestone to urban household's food security. The HFIAS food security measurement tool has been used to analyze the impact of the enterprise on the food security situation of cobblestone workers. The framework was initially developed by FANTA project; employing both "frequency of occurrence" questions and "behavioral responses" questions emanating from individual perception about food insecurity. To strengthen the results obtained by HFIAS measurement tool, respondent food consumption and food security perception was assessed. Majority of the respondents were unemployed and students who have no income prior to the engagement in the enterprise while some of them were seeking employment.

Policy makers are exploring and experimenting with new antipoverty strategies to improve the well-being of the poor, one of the many strategies being explored is the promotion of self-employment for the poor, mainly through micro enterprise programs, in this connection cobblestone enterprise.

5.2 Conclusion

The study identifies that, cobblestone plays enormous role in reducing unemployment and poverty by absorbing maximum man power.

It has desirable outcomes which benefits workers providing with a better income and contributes to the urban poor food security situation

It provides livelihood to the most productive section of the population, which is of paramount importance for the economic development of the country.

The other livelihood outcome was saving which is becoming a habit by cobblestone workers

HFIAS measurement tool could give an indication of food security status of a given study population. Results from the study show that 9 respondents were food secure for a 30 day recall period, while 55 of them were mildly food insecure and the rest 27 moderately food insecure.

5.3 Recommendations

In order for cobblestone enterprises to contribute much to the sustainability of the livelihood, the following measures deserve attention and consideration.

To achieve the desired change, program implementation plans should focus not simply reducing unemployment and poverty but also focus on how to facilitate and implement accordingly.

Cobblestone project offices should work in collaboration with the cooperative department in the sub-city for better and desired enterprise development since it is not only contributing income for urban households, but also it enables to save foreign currency and lower cost when compared with asphalt roads.

Saving is one aspect in the alleviation of economic and social problems of the city; hence it must be strengthened to make all members participant in the system.

As to the nutrition aspect a lot should be done with concerned stakeholders to bring change in food consumption

habits, because the reason for the mildly insecure HHs is the result of eating monotonous and limited variety foods.

There are lots of unemployed and poor people in the sub-city. Therefore there should be an effort to exert diversifying cobblestone enterprises for the reason, they do not require capital to start the business and can change the lives of the poor within a short period of time.

Finally it is worth indicating that this study has been devoted to explore the contribution of cobblestone to urban household's food security within the HFIAS model. It has not thoroughly gone into the conditions of the seven days or twenty four recall period food consumption assessments. Thus, further studies should be conducted to set out the food security implications of cobblestone by employing other food security measurement tools since a single measuring tool can't give absolute results.

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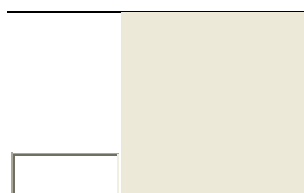
The Household Food Insecurity Access Scale and an Index-Member Dietary Diversity Score Contribute Valid and Complementary Information on Household Food Insecurity in an Urban West-African Setting^{1, 2}

<http://jn.nutrition.org/content/early/2010/10/20/jn.110.125716.abstract>

The number of urban poor is increasing quickly in West Africa, yet food security early warning systems still do not include urban areas. One reason is the lack of appropriate and internationally agreed-upon indicators to measure urban household food insecurity. Our objective was to assess the performance of the household food insecurity access scale (HFIAS) and an index-member's dietary diversity score (IDDS) to approximate the adequacy of urban households' diets. A survey was performed on a random cluster sample of 1056 households in Ouagadougou, Burkina Faso. Data on HFIAS and IDDS and 2 nonconsecutive household quantitative 24-h recalls were collected twice, in June-July and in November-December 2007. Diet adequacy was assessed through the household's mean adequacy ratio (MAR) using energy and 11 micronutrients. Structural equation modeling was used to quantify the association of each candidate indicator with the MAR and receiver-operating characteristic (ROC) analyses were performed to assess their targeting performance in predicting low or high MAR. HFIAS was negatively associated with the MAR [path coefficient (P) = $-7.95 \times 10^{-3} \pm 1.45 \times 10^{-3}$; $P < 0.001$], whereas IDDS was positively associated with it ($P = 5.19 \times 10^{-2} \pm 1.27 \times 10^{-2}$; $P < 0.001$). Areas under the ROC curves ranged from 0.585 to 0.661 for HFIAS and from 0.536 to 0.629 for IDDS. In conclusion, HFIAS and IDDS performed well in approximating adequacy of urban households' diets. They are informative indicators about urban food insecurity, promising for evaluation and monitoring but not for household targeting given their insufficient predictive power.

Footnotes

- 1 Supported by grants from the Permanent Inter-State Committee for Drought Control in the Sahel (CILSS, Comité permanent Inter-états de Lutte contre la Sécheresse dans le Sahel, Burkina Faso), the Embassy of France in Burkina Faso (French Ministry of Foreign Affairs, Paris), and the Institut de Recherche pour le Développement (France). E.B. was a recipient of a research allowance from the Pierre and Marie Curie University (UPMC-Paris VI, France).



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The University Capacity Building Program (UCBP) is a large-scale capacity development and construction project conceived, steered and fully funded by the Ethiopian [Ministry of Education](#) and [the former Ministry of Capacity Building, the current Ministry of Civil Services](#).

As the project management and implementation agent, [GIZ International Services](#) - foremost task is developing the capacity of the Ethiopian construction sector. GIZ IS is supervising the construction of 13 universities at 15 different sites throughout Ethiopia, mostly in rural locations. The phased approach allows an intake of students to each university while construction is continued. This enables campuses to be functional as construction continues on other buildings of the campus. In 2010, 90,000 students live and study on UCBP campuses.



The University Capacity Building Program constructs

13 universities in
15 locations throughout Ethiopia on
1.500.000 square meters for
148,000 students.

The program aims to:

- 1) Modernize Ethiopia's construction sector, leading to increase international competitiveness; and
- 2) Design and construct public universities in 15 locations throughout Ethiopia, at a competitive cost and a very short time span.

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http://www.unscn.org/files/Task_Forces/Assessment_Monitoring_and_Evaluation/HFIAS.pdf WFP hfias report 4 HFIA pdf
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<http://www.ifpri.org/publication/rural-urban-linkages-growth-employment-and-poverty-reduction> RURAL-URBAN LINKAGES FOR
GROWTH, EMPLOYMENT, AND POVERTY REDUCTION

Respondents were not interested to tell their exact monthly income and saved money while working in cobblestone enterprise. The reason identified by some of the respondents and from group discussion was that, many of the cobblestone workers undermine the activity, while others were afraid of reporting their actual income.

The Food and Nutrition Technical Assistance Project (FANTA) is acknowledged for providing questions used in this survey to measure food insecurity.