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**COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR FOOD SECURITY**

LIVELIHOODS COPING MECHANISMS OF SOLID WASTE COLLAPSE INDUCED
DISPLACED HOUSEHOLDS: THE CASE OF REPPIE ADDIS ABABA, ETHIOPIA

By: TIGIST MISGANAW

A THESIS SUBMITTED TO CENTER FOR FOOD SECURITY, COLLEGE OF
DEVELOPMENT STUDIES, ADDISABABA UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER
OF SCIENCE IN FOOD SECURITY AND DEVELOPMENT

JUNE, 2022

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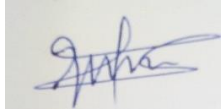
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DECLARATION

I, **Tigist Misganaw Amare**, do hereby declare to Addis Ababa University School of Graduate Studies that this thesis is a product of my original research work, and it has not been submitted to any other university for any academic degree. Materials and information other than my own are duly acknowledged.

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As a supervisor/co-advisor of the thesis, we certify that we have read and evaluated the thesis prepared by Tigist Misganaw Amare Entitled ‘Assessment of Livelihoods Coping Mechanism of Reppie Solid Waste Collapse Induced Displaced Households in Addis Ababa, Ethiopia’ and recommend for Open Defense as fulfilling the requirements for the degree of Master of Science in Food Security and Development.



06 September 2021

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Signature and Date

As members of the Examining Board of this Thesis Open Defense, we certify that we have read and evaluated the thesis prepared by Tigist Misganaw Amare entitled Assessment of Livelihoods Coping Mechanism of Reppie Solid Waste Collapse Induced Displaced households in Addis Ababa, Ethiopia and recommend that it is acceptable as a thesis required for the Master of Science Degree in Food Security and Development.

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Final approval and acceptance of this thesis is contingent upon the candidate's submission of the final copy of the thesis, incorporating all the comments by Examining Board, to the Council of Graduate Studies (CGS) through the Center Academic Committee (CAC) of the Center.

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Acronym

AAU	Addis Ababa University
BLR	Bi-variate logistic regression
CSA	Central Statistics Agency
DIFID	Department for International Development
FGD	Focus Group Discussion
FHH	Female Households
HH	Household
IDMC	Internal Displacement Monitoring Centre
KM	Kilo meter
LCS	Livelihood Coping Strategies
MLR	Multivariate logistic regression
M ²	Meter Square
NGO	Non- Governmental Organization
SPSS	Statistical Package for Social Sciences
UPSNP	Urban Productive Safety Net Program
WFP	World Food Program

ABSTRACT

In developing countries urban poor are forced to concentrate on physically dangerous sites which are closed to industrial facilities, toxic waste, solid waste dumps, which are susceptible to landslides and flooding. Ethiopia has also encountered collapse of mountain of solid waste in the capital Addis Ababa which claim the life of the many individuals and destruction of the property, and displaced many households from new resettlement areas. Displaced households often lose assets when they are forced to flee their home and land. They may also be unable to pursue their former work, leading to unemployment, underemployment or informal work, and a significant drop in income. Livelihood loss may lead to reduced access to food and an increase in malnutrition. The main aim of this research is to identify livelihood coping mechanisms applied in Reppie solid waste collapse induced displace in Addis Ababa. By taking a systematic randomly selected sample of 223 households from four new resettlement areas. Mixed research approach was employed and triangulation was vital method of converging concurrently collected data through survey, and FGDs. The data were analyzed using frequency tables, percentage, logistic regression and chi-square test. And livelihood coping capacity status was also ranked using Coping Strategy Index weighting calculation developed by World Food Program (WFP). The outcome of the study indicates that 38.1 % of displaced HHs are face food shortage or money to buy food for so that they engaged Livelihood coping strategies (LCS). Based on LCS standard, it is found that HHs using Neutral coping strategies 4.7%, Stress coping strategies is 52.9%, crisis is 12.9% and 29.9% is emergency coping strategies. The four most applied LCS strategies are 54.7% purchased food on credit or borrow food, 48.8% sold household goods or assets, 46.5% spent their saving and 46.5 % also reduce non-food expenses (health, education, social events). The most severe strategy is begging practiced by 8.8% HHs. In the bi-variate logistic regression, the engagement of Livelihood based coping strategies is associated with age of household ages, education status, access to credit, size of households, income source type and ownership of house.

Finally, recommend that an emergency food support should carry out and parallel initiate livelihood developmental interventions so as to avert the consequence of coping strategies. As well as develop resilience capacity at time of shock or stress.

Key words: livelihoods, coping mechanisms, displaced households, Addis Ababa

CHAPTER ONE: INTRODUCTION

1.1 Back ground

In Ethiopia, previous poverty reduction policy and strategies have generally focused on rural areas rather than urban areas. However, nowadays it is evident that urban poverty is a major problem in many cities and towns of the countries. With the alarming rate increasing rural-urban migration, the urban residents have faced limited access to livelihood opportunities and hence income; inadequate and insecure housing and services; limited access to basic health services and education opportunities; and, in general limited access to social and basic infrastructure (Meron, 2005)

The better off settled in well-developed and secured land while poor people are pushed out from parts of the city near to employment opportunities and other facilities necessary to economic survival. Whenever people lack the opportunity to reside in well-developed and secured land, they are obliged to occupy cheap, high density and environmentally poor locations. That is, they are forced to concentrate on physically dangerous sites which are closed to industrial facilities, toxic waste, solid waste dumps, which are susceptible to landslides and flooding.

Rapid urbanization, poverty and limited resources, a lack of political will of urban and national governments to invest in much needed infrastructure and lack of power among poor people to influence infrastructure policies taken as reasons for the marginalization of poor urban residents to dangerous sites (Meikle, 2002)

Therefore, coupled with income poverty urban segregation makes poor urban residents vulnerable to natural and anthropogenic hazards. Even if different hazards occur everywhere, their impacts are more pronounced in developing countries due to their level of poverty. To mention few of the hazards that were happened in developing nations a garbage slide in Guatemala City, in which the deadly, 2011 slide in the Philippines buried 20 houses. Another garbage landslide in the Philippines in 2000, garbage slide in Java, Indonesia, killed 143 people and illustrates such dangers and 2014 more than 1000 people whose homes were either destroyed or weakened are being housed in local schools and with family and friends, Sri Lanka landfill collapse at least 29 people were killed in the disaster (Dave,2017).

Ethiopia has also encountered collapse of mountain of solid waste located 13 km southwest of the capital Addis Ababa on march 2017 Solid waste disposal at Reppie, it has been very alarming; and experiencing tragic rubbish landslides which claim the life of the many individuals and destruction of the property, and displaced many household members (Eyilachew, 2019). Therefore, this study attempts to assess livelihood coping (strategies) employed by Reppei solid waste displaced households in Addis Ababa.

1.2. Statement of Problem

Solid waste disposal and handling is a major challenge for many developing countries across the world. Its improper waste disposal and handling not only end up in a disgusting view of the area but also pollute the environment as well as expose individuals to toxic contaminants and affect livelihoods in general. Garbage-dump landslides are a significant problem for countries in the developing world, but they are also a topic that scientists have not studied widely. In Philippines buried 20 houses, claimed the lives of at least 200 people, in 2055 and 2014 Indonesia waste slide buried 71 houses and killed 143 people and more than 1000 people whose homes were destroyed in Guatemala City and Sri Lanka landfill collapse at least 29 people were killed in the disaster (Mihret, 2017)

According to Eyalachew (2019) argue that waste disposal situation of Addis Ababa is much worst and complicated. The main waste disposal of the City is held at Officially Known as ‘Reppi’ land fill (koshe in Amhaic) the area is a mountain of an open dumpsite where millions of tons of solid waste collected from Addis Ababa, home to some four to five million inhabitants, has simply been disposed of for more than half a century. The boundaries are not exactly known as it doesn’t have a proper fence, exposed to heavy rains and intense sunlight throughout the year (Mahtieme, Y.2005)

Its surroundings on all four sides is home to both plastics make shift and poorly constructed mud and wood house that shelters hundreds of people. The area surrounding Koshe is not just home to the 200 or so households known to the city Administration; there are at least 500 households most of which also rent additional quarter to tenants.

Koshe is unstable garbage mounds regularly experience landslides of varying degrees of severity, most of them minor. However, the March 2017 open garbage dump landslide was the devastating one in the history of Ethiopia (Dave, 2017). The Rubbish hill slide primarily hurt sixteen families resided there legally. There were also 54 lessees living in the service house of those sixteen families. There were also 102 families dwelling there illegally by building huts and house of mud although the extent of their injury is less than that of the aforementioned families. The total numbers of victims of the rubbish hill landslide were 184 families and 592 individuals. Among the total victims, 115 individuals died, and six of them were unidentified due to the decay of their corpse. Additionally, the tragedy brought physical injury and mental trauma of rescued people, Properties damaged including livestock, buried house and household materials (Asnakew, et al 2018).

As a result, government, volunteers, humanitarian partners and public had provided food and non-food assistance, medical supplies, cash and death compensation interventions doing their best for the possible recovery of disaster victim (Nega,2015). Nevertheless, such kind of enthusiastic support could

not stay long. It came to an end as the waste dump hill slide-victims moved from temporary shelter to newly resident homes.

Displaced people often lose assets when they are forced to flee their home and land. They may also be unable to pursue their former work, leading to unemployment, underemployment or informal work, and a significant drop in income. Livelihood loss may lead to reduced access to food and an increase in malnutrition. Loss of livelihoods due to disaster induced displacement can limit access to decent shelter, health care and education, jeopardize security and social life.

The disruption of social life caused by displacement can damage mental health and access to work. The reduction in financial resources that often may lead the most vulnerable families to take their children out of education, and may reduce their chances of securing decent work and income, affecting their long-term welfare and limiting their future contribution to the economy. Displaced people sometimes resort to negative coping strategies and unsustainable practices in an attempt to fulfil their livelihood needs. Faced with the urgency of replacing assets lost as a result of their disaster. The ripple effect (IDMC,2018)

Access and control over resources greatly affects people ability to cope with disaster (Twigg, 2001; Dewi, 2005; Mekiel, 2002). Those with better income, diversified livelihood, means of production, equipment is less vulnerable and are able to recover quickly than those without such endowments (Wisner et al.2005).

Therefore, the researcher of this study is initiated to explore livelihoods coping mechanism of waste-dump hill slide victims after the tragic event happened.

1.3 Objective of the study

1.3.1 General objective

The main objective of this study is examining livelihoods coping mechanisms adopted by Reppei solid waste collapse displaced households in Addis Ababa.

1.3.2 Specific Objectives

- To explore the livelihoods coping strategies employed by Reppei solid waste collapse displaced households.
- To examine factors affecting choice of livelihood strategies after displacement in the study area.
- To provide an indication for further research and program intervention in the field of displaced Households

1.4. Scope of the Study

The study was conducted in Addis Ababa especially Reppie solid waste induced displaced Households only. In the context of disaster livelihood coping strategies could be applied in three phases of disaster-pre-disaster, during disaster, and post disaster coping strategy. However, this study was focus on post disaster livelihood coping mechanism specifically at garbage hill slide disaster-displaced household in Addis Ababa. The concept of livelihoods is too broad and complex, which can be interwoven with various aspects of food security issues, diversity of livelihood and other concepts. It also can be studied at national and regional level all displaced households because of different reasons. However, it was not possible to include these issues.

1.5 Limitation of the Study

This study is carried out and focused only on displaced households from Reppie land fill areas in Addis Ababa city which is the capital of Ethiopia. Nevertheless, it should be kept in mind that there are many internal displaced households because of different reasons with in the city and other regional cites. Due to limited resources and time constraint, however, the study could not cover livelihoods coping strategies of internal displaced HHs in other cities. Moreover, the sample population of the study is only 223 households.

Study time was not convenient (because of Covid-19 Pandemic) to gather more people for focus group discussion, few participants were interested to be part of it. At the same time respondents didn't interested to remember what exactly happen, very fatigued to talk the tragic event.

Another limitation of this study may be that that surveyed households were not interested to disclose their current job, saving and income related due to the fact that the HHs relate such assessments with NGO benefits.

1.6. Significance of the study

The study may add to existing literature and help other researchers who intend to conduct research on related topics and study areas. Apart from its contribution to academic sphere, it may be utilized by rehabilitation and recovery office, livelihoods Strategy and policy makers and NGOs to design training, provide food aid and to empower HHs in the study area moreover this study was bringing additional knowledge and generate important information to the scientific communities on the coping mechanism followed by displaced households in the study areas. This study was be used as a springboard to other research to look in deep on the consequence of Reppei solid waste collapse on survival households

1.7 Organization of the thesis

The study consisted of five major chapters. The first chapter was an introductory part of the study, which deals about Introduction, statement of problem, objectives, scope of the study, significance of the study, limitations of the study and organization of the study. The second chapter was a review related literature. The third chapter dealt with the description of the study area and research method. The fourth chapter presented result and discussion of the study. The final chapter consisted of conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Conceptual foundation

2.1.1 Waste dump collapse and impacts

Despite a wide range of industrial hazardous accidents that have occurred worldwide in and around the vicinity of dumpsites, only a handful of contemporary disastrous solid “waste slides” or “waste avalanches” have been documented. Such events have occurred in western post-industrial countries (for example in Kettleman, California, in 1988, Cincinnati, Ohio and Coruña, Spain in 1996, or Athens in 2003), but it is only in developing countries that they have led to major disasters.

The immediate environment of dumpsites is usually considered as unsuitable for settlement by those who can choose where they live. The waste slide indeed affected marginalized and vulnerable people who struggled to make a living out of the dumpsite. For the most marginalized and poorest people, the cheap and often illegal nature of settlements near dumpsite is another resource as these people cannot afford more expensive rents in safe places, settling far away from their primary mean of livelihood. Most of these people further lived in houses made of scrap materials scavenged from the dumpsite. Such housing proved to be very vulnerable to urban fire and waste slide (Gaillard et al, 2008).

Disaster affected people are disproportionately drawn from the segments of the society which are chronically marginalized in daily life. Disaster-affected people are marginalized geographically because they live in hazardous places (e.g. informal settlers); socially because they are members of minority groups (e.g. ethnic or caste minorities, disabled individuals, prisoners and refugees) (Reganit,2005).

To this end, poor people lack the capacity to cope with the devastating disaster. For instance, when we see the difference between rich and poor people in facing disaster, the homes and possessions of the rich are usually insured, and they can more easily find alternative shelter and continue with income-earning activities after the hazard impact. They often also have reserves and credit. The poor, by contrast, frequently have their entire stock of capital (home, clothing, tools for artisan handicraft

production, etc.) assembled at the site of the disaster and they do not have savings and reserves which can help them to come out from the devastating effect of disaster (Wisner,2003).

2.1.2 The definition of livelihoods

The definition of livelihoods is an umbrella concept. But there is a consensus that livelihood is about the ways and means of making a living. The concept implies livelihood is more than just making income. While conducting a study on livelihoods in London in the early 1980s defined Livelihoods and Coping Strategies: ‘an ensemble of productive tasks, which includes finding or making shelter, preparing food to put on the table, transacting money, and conducting exchanges in the market. Furthermore, livelihood is a matter of the ownership and utilization of information, management of social relationships, meeting obligations, and affirmation of personal identity and significance. Thus, livelihoods in this new concept is explicitly related to household resource and asset endowments, organizational capacity to command and deploy resources, ability to make choices from range of alternatives, and sense of own worth and recognition of others.

Livelihoods comprises of capabilities, assets and activities required for a means of living to define a specific household livelihood strategy. The choice of a livelihood strategy that a household pursues is dependent on the socio-economic characteristics of the household including the skills which its members have at their disposal (Ellis ,2000)

2.1.3 The livelihoods Approach and its principles

There is increased understanding that the ways by which households and individuals realize their basic socio-economic needs are through complex blend of activities, capabilities, and assets. During the beginning of the 1990s, two prominent personalities stimulated intellectual inspiration and originated a new broader concept, the sustainable livelihoods approach, for the analysis and understanding of how people pursue their livelihoods in dealing with poverty. Chambers and Conway (1992), who conceived the livelihoods concept and approach from a rural context, defined the term in its entirety as ‘means of gaining a living’. Livelihood combines capabilities (human endowments such as skills, aptitudes, and initiatives) assets (stores and resources) and entitlements (claims and accesses) as both means and ends of sustaining a living. This new paradigm puts people at the center and a livelihood to be both socially and environmentally sustainable.

The credibility of the concept is that, since its inception, more optimistic studies which look households as proactive citizens able to survive in shocks and uncertainties appeared and dominated the development discourse. Moreover, the approach which was first developed to analyses livelihoods in rural contexts, is since recently adopted to urban socio-economic contexts and has become an important analytical tool to understand the dynamics of urban poverty.

The concept now has reached in the North and South and has influenced thinking and policy practice throughout the world (Carney 2002). Right after 1992, development agencies and donor institutions such as DFID, OXFAM, CARE, UNDP and SID adopted the concept of sustainable livelihoods and spot it as analytical tool embracing set of core principles embedded within an overall theoretical framework. As a major impetus to the approach, since its inception the institutions have been exploring the methodological approaches of the concept, adopt its principles to their own working environment and priorities, and use it as a tool for development intervention, project evaluation, and policy analysis in both rural and urban context.

The DFID Sustainable Livelihoods Guidance Sheets (1999) give the following definition: 'A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.'

The sustainable livelihoods approach is integrating concept of different themes: assets, vulnerability, and sustainability. The general theme of the approach is that various strands are linked together with the appreciation of the diversity of livelihoods, the role of different types of assets, the importance as well as impact of the wider social and economic environment in mediating access of individuals and households to assets and livelihood systems (Carney 2002).

The second important theme of the concept is that household livelihoods and activity diversification require combination of tangible and non-tangible assets, thus analysis of poverty and individual or household livelihood systems requires examination of the functions of the different asset portfolio held (Chambers and Conway 1992).

The third theme of the approach is that livelihood is sustainable if it is capable of passably satisfying people's needs, offering security against shocks and stresses and maintaining long-term productivity of resources without compromising livelihood options of others or future generation. The fourth important theme of the livelihoods approach is that people's assets and livelihood strategies are not floating freely but are embedded in structures and influenced by processes, the so-called vulnerability context. Within the overall theoretical framework, several principles are embedded in the sustainable livelihoods approach.

First, poverty is recognized as multidimensional. Second, and of course the most important principle is that it takes people at the center of analysis and recognizes their strengths in asset portfolio, livelihood strategies and activities as vital antidote to the view of poor people as 'passive' or 'deprived' (DFID, 2000). Third, livelihood is holistic and usually influenced by multiple internal and external variables; and assets are just more than income-winning mechanism but have broader meaning to the

people's world and being. Moreover, livelihood strategies are diverse and volatile; and individuals or household may be in and out of poverty since they live in a dynamic rather than static situations. Underlying the concept of livelihoods and basic livelihood requirements are dependent in part on individual or household endowments and endeavor and in part on public policies and institutions and social networks and relationships (Cahn, 2002).

2.1.4 Assets

The sustainable livelihoods approach proposes new thinking in terms of viewing people as having strengths or assets as conceptual remedy to traditional paradigms which view poor people as 'deprived' or 'passive'. The proponents of the approach put forward that for more conceptual, empirical and practical understanding of livelihoods of poor people, it would be appropriate to start with an analysis of strengths as opposed to an analysis of needs in order for spotting what opportunity they may offer or where limitation may lie (DFID 1999). Accordingly, though they may not have financial capital poor people may have vital material and non-material assets: the quality and quantity of labor (the knowledge, skills, physical and mental health), the social ties and networks, and other physical resources to draw and build their livelihoods).

The sustainable livelihood approach is concerned first and foremost with seeking accurate and realistic understanding of how people combine and nurture assets or capital endowments and convert them into livelihood outcomes. Thus, the approach has identified five categories of assets (human, financial, social, physical, and natural) and presented them visually in the framework as a pentagon to bring to life the inter-relationships between the assets.

2.1.5. Vulnerability context

Urban livelihood studies define vulnerability as insecurity and sensitivity to economic, social, political, and ecological changes which endanger the well-being of individuals, households and communities. Implicit within the vulnerability is the responsiveness and ability to mobilize resources to resist risks households face during such negative changes. Four are the main threats to livelihoods: shocks, stresses, trends, and seasonality. Shocks refer to unpredictable, sudden, and traumatic impacts; stresses are predictable, continuous, cumulative pressures; trends are frequent changes in macroeconomic variables, population, and technology; while seasonality refers to recurring changes of employment opportunities and prices (Moser 1998).

The vulnerability context is usually external and out of people's immediate control. People's ability to respond to external changes and resist or recover from the negative effects of the changing environment depends on the asset base and opportunities open to them. Therefore, vulnerability is closely linked to asset base and capabilities; thus, the weaker the asset base the higher the vulnerability and vice versa. In other words, the stronger the asset status over which people have control and the more the options open for them, the better the capacity to avoid or reduce vulnerability.

Furthermore, the ability to cope and reduce vulnerability depends on private action composed of positive competence, the ability to perceive, predict and adopt and mobilize resources, exploit opportunities, and transform assets. Thus, vulnerability depends on the stock of human capital available in order to make use of the other types of assets (Chambers and Conway 1992).

2.1.6 Livelihood strategies

Based on the asset portfolio they have, under the vulnerability context they operate, and constrained by structures and processes people choose strategies composed of activities that generate the means to improve their livelihoods, spread risks, or enable recovery. Thus, livelihood strategies can be defined as activities people carry out and choices they make in order to achieve their livelihood goals (DFID 1999). People's livelihood strategies are dynamic thus change with the context of the external environment over which they have little control. Therefore, understanding the dynamics and outcomes of people's livelihood strategies is important to trace back their impact on the resource and assets the household and the community call for (Cahn 2002).

Livelihood strategies are a range of activities that people practice to achieve their livelihood goals/improve their livelihood. Livelihood strategies embrace coping strategies designed to respond to shocks in the short term and adaptive strategies designed to improve circumstances in the long term. In the case of disastrous event, diversification of livelihood, extending working hours, changing of work or workplace or even trading work for food was found to be strategies that the households adopt in order to increase or extend their economic resistance.

Apart from this, they try to use their savings (if any), borrowing money or selling/pawning valuables such as their few appliances or livestock, as these constitute their reserves for other 'critical times' such as illness, unemployment or death (Peters, et.al 2009).

The success of strategies employed by households manifested in more income, reduction of vulnerability, improved food security and sustainable use of resources. The reverse applied to the

failure of strategies. Many of the short- term strategies (coping strategies) adopted by poor people could not be termed as sustainable. For instance, cutting expenditure on education, basic food, medical and transport costs in the short term may undermine human capital in the long term (Skoufias, 2003).

2.1.7 Types and levels of coping strategy

The term coping strategy has been given various definitions by different scholars in the context of disaster. Coping is a mechanism that households or a community employs to handle the stress situation by mobilizing the assets or capital resources (human, financial, physical, social and natural. Coping strategies refer to the manner in which people and organizations use existing resources to achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster phenomenon or process (Gaillard, 2010)

According to Twigg (2004); Huraera et al. (2010) there are four types of coping mechanisms in the context of disaster:

Economic/material: Diversifying income sources: in cities this may mean illegal or quasi-legal work, such as street-hawking and waste-recycling. Having more than one, or sometimes several, income earners in the family also allows for diversification or gives household additional labor. This sometimes means taking children out of school to help generate extra income. Saving and credit schemes can be taken as economic coping strategy.

Technological: Modifications to the physical and built environment: this may include modifications within the house or to the house structure which include building houses on stilts.

Social/organizational: It is related with the development of social support networks: this is the ability to call on the resources of others during difficult times. Networks can be within the household, between extended family members (living near or far), within neighborhoods, and with wider groups that have a shared identity (religious, geographical, commercial, etc.). Assistance can come in many forms – financial help, emotional support, shelter in time of need, or physical help of any kind.

Cultural coping strategies include risk perception and religious views.

Coping strategies operating at different levels such as individual (household), community (neighborhood) and institutional (city wide or beyond) level. The individual level coping strategy consists of, for instance livelihood diversification, migration and so on. Collective actions such as cleaning the canal, helping other community member in doing work are labeled as community coping strategies. The institutional coping strategies are strategies taken beyond the level of household or community. Investments in roads and pathways and drainage and sanitation systems, and improvements to open spaces fall under the category of institutional level coping strategy.

Taking this into consideration, this study has looked at individual level coping strategy. When households hit by disasters, they cope by changing work pattern- moving more members in to the labor force, or working more hours or by reducing expenditure, taking loans, leasing assets or in the extreme they sell assets. Members may migrate to the village, or families may move together. If this also does not work the member will beg or ask for help (Huraera et al. 2010).

As mentioned above, there are different kinds of coping strategies in the context of disasters. Since the focus of this study is on displaced households, we would like to see post disaster coping strategies/impact minimizing strategies of the group under study in Addis Ababa and the outcomes of the coping strategies employed.

2.1.8 Factors that influence the choice of coping strategies

According to Degefa (2008) Access and control over resources greatly affects people ability to cope with disaster. Those with better income, diversified livelihood, access to credit and saving, and means of production, equipment and health status are less vulnerable and are able to recover quickly than those without such endowments. Apart from asset possession, the magnitude of disaster also influences the choice of coping mechanisms (Reganit, 2005).

In context of DFID (1999) livelihood assets are assets used by individuals to realize their self-defined goals/outcomes which include human, physical, financial, natural and social assets. The strategy options open to a household depends on the portfolio of assets held and the capability of a household to find and make use of livelihood opportunities assets commonly used by the urban poor are discussed as follows:

Human capital: - Human capital in the context of sustainable livelihood framework is defined as the skills, knowledge, ability to labor and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives. Human capital is widely substantiated as a key to successful livelihood diversification. It differs at household level based on the household size, skill levels, leadership potential and health status as these aspects affect the utilization of the various assets Hence, the positive changes in human capital have to be seen as a supportive factor for the other assets. The significance of education, both formal and workplace skills, for improving livelihood prospects have been established by a number of studies. Poverty is closely associated with low levels of education and lack of skills (DFID, 1999).

Financial capital' The financial resources which are used to attain positive livelihood outcomes include the availability of cash or its equivalent that allows people to implement various livelihood strategies. According to DFID (1999) there are two major bases of financial capitals, namely:

- Available stocks including cash, bank deposits or liquid assets for instance jewelry and livestock, that aren't attached to liabilities and independent of third parties and

- Regular inflows of money encompassing income from labor, pensions, or other transfers from the government, and remittances that are mostly dependent on others and need to be reliable. Financial capital is multiuse and handy compared to the other four capitals, because it can be easily changed to other capital or can be used directly. Nevertheless, this capital, which creates opportunity to be a substitute for other capitals, is the least available asset for the deprived.

Physical capital; Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods, such as affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean, affordable energy and access to information. Basic infrastructures such as roads, power and communications remain to be priority for sustainable development and poverty reduction. The impact of physical capital impact on the sustainability of a livelihood system is appropriately illustrated in the concept of opportunity costs or 'trade-offs', since a poor infrastructure impede education, access to health services and income generation (Kollmair, 2002)

Social capital

There are many debates on the definition and aspects encompassed by social capitals. The sustainable livelihood framework approach describes social capital as social resources that people demand in search of their livelihood outcomes like networks and connectedness which increase their trust and aptitude to collaborate or be involved in formal groups and systems of norms, rules and sanctions. Most of the time, birth, age, gender or caste can determine the access and amount of social capitals what may vary within a household. The relationships in social capital are developed through dealing with interaction that increase people's ability to work together; for example, membership in formal groups where relationships are governed by accepted rules and norms, relationships of trust that facilitate cooperation, reduce transaction costs and may provide the basis for informal safety nets amongst the poor. Social capital is a vital community asset which can contribute to increase the management of other forms of capital (DFID, 1999).

Natural capital

Natural Capital Natural capital are resources from the nature stock that flows such as land, water, forests, air quality, erosion protection and the degree and rate of change in biodiversity that are useful for peoples' livelihood. Most of the world's poor are rural and most of the rural poor depend on agriculture or are otherwise dependent on natural resources in generating their livelihoods; which creates strong linkage between rural poverty and natural resources (Lee and Neves, 2010). Thus, the contribution of natural capital to the rural households' livelihood in terms of issues of access, use and control is significant DIFID, 1999 and Degefa, 2008).

2.3 Empirical findings

Survey done in Iraq at time of crisis overall beneficiaries most commonly 'buy food on credit' and 'borrow money to purchase food'. Households in hard-to-reach areas are more likely to use coping strategies that may affect them in the long term, especially more severe strategies such as 'withdraw children from school' or 'reduce essential non-food expenditures like health or education' (Stephanie,2007) .Baseline survey was conducted in Yemen after the escalation of the conflict shows the four most common livelihood-based coping strategies households applied with a shortage of food are to:1) purchase food on credit (80%); 2) borrow money (59%); 3) sell household assets/goods (37%);and 4) reduce health and education expenditures (37%) (Creative Research Systems report (WFP, 2012).

Degefa (2008) discusses types of coping strategies particularly employed in developing countries like Ethiopia. As to him, Ethiopian households use different coping strategies in order to overcome food shortage and survival strategy family was using less costing food staff, sending their daughters to the Middle East Region to serve as maid-servants and the daughters transfer their salary to their families, living in poor or slum community, they involve some 'undesirable activities' such as commercial sex, theft, and begging.

Eleni (2011) research on flood coping strategies in Dire Dawa finds that immediately after the incidence of flood, victims were entirely dependent on the aids given by governmental and NGOs, drawing down their assets like jewelry and some were found to be dependent on their kin, or neighbors to borrow food, money, having more than one job, cutting expenditures and walking as means of transport.

According to Yared (2010) food security and coping strategies study conducted Addis Ababa Lideta sub city asserts that households use different types of coping mechanisms such as reducing the amount of food purchased from market, reduction of food consumption of adults in order to give priority to their children and skipping meals. Moreover, his findings depicted that the women have been engaging in activities such as petty trading of vegetable and charcoal, collection of *chat* branches and waste paper for sale, cloth washing, baking *Injera*, hair dressing, Areke (local liquor) sales, running a kiosk, begging and sending their daughter to the Middle East for domestic labor.

According to Rahel (2011) found relying on less preferred and less expensive food items and limit amount of meal by minimizing the daily food intake to one time or totally skip for the day. Among the strategies deployed by the FHHs is sending children to eat with neighbors and households' members to beg is the most severe strategies that are used by a good number of FHHs

For poor rural households borrowing food, charcoal production, and migration are of critical means to ensure living in Ethiopia (Suneetha and Solomon 2012). Access and control over resources greatly affects people ability to cope with disaster (Twigg, 2001; Dewi, 2005; Mekiel, 2002). Those with better income, diversified livelihood, means of production, equipment is less vulnerable and are able to recover quickly than those without such endowments (Wisner et al.2005).

2.4 Conceptual framework

Independent Variable

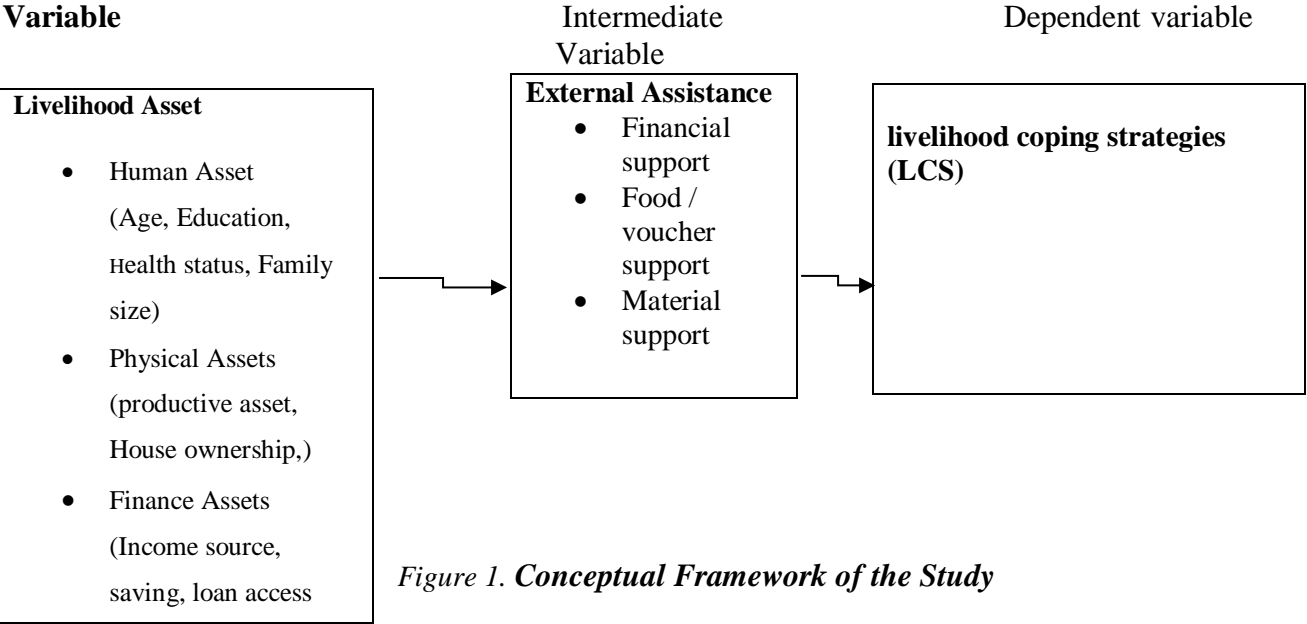


Figure 1. Conceptual Framework of the Study

Source: Sustainable livelihoods framework (some own modification, 2021)

2.4.1 Assumption of conceptual framework

2.4.1.1 Livelihood assets: displaced household coping strategies influenced by multiple internal and external factors. Livelihood assets are the one and may be the most vital element to cope up the shock. Livelihood assets include human, financial, and Physical

2.4.1.1.2 External assistance; livelihood coping strategies of displaced households are not influenced by livelihood assets only but also influenced by external assistance. External assistance such as financial, food and material support. External assistance is very essential to displaced household especially at the time of the crisis to cope up with the challenge for a while.

2.4.1.1.3 Livelihood coping strategies: displaced households coping strategy is a function of livelihood assets and external assistance. In the schematic representation of analytical framework diagram the arrow depicted that both livelihood assets and external assistance variables are vital for displaced households coping the challenges.

CHAPTER THREE: RESEARCH METHODOLOGY

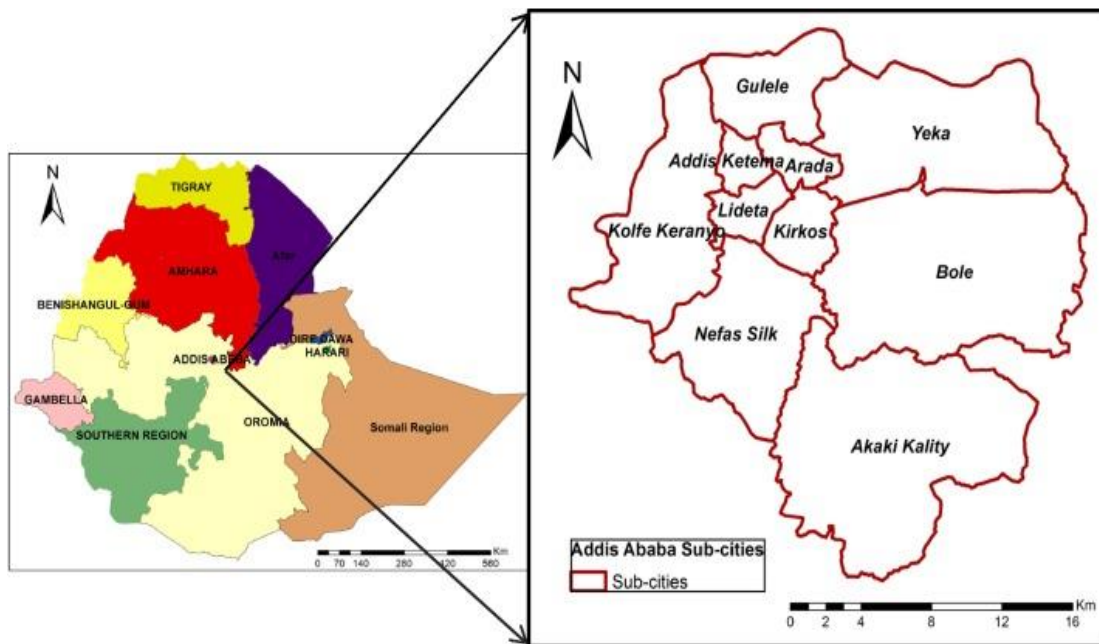
3.1. Description of the study Area

The study was carried out in Addis Ababa city Administration where displaced household's new resident areas. Addis Ababa was founded in 1887 by Menelik **II**, situated in the foothills of Entoto Mountains and standing 2,400 meters above sea level. It is the third highest capital in the world that covers about 540 Km² and located in 09° Latitude and 38° 44' Longitude. According to the current administrative structure, city is governed by Addis Ababa City Council. It has **11** Sub-City administrations and 99 Kebele administrations (yared, 2010).

As of the latest 2007 population census Addis Ababa has a total population of 2,739,551 urban and rural inhabitants. For the capital city 662,728 households were counted living in 628,984 housing units, which results in an average of 5.3 persons to a household. Of which males constitute 1,304,518 (47.6%) and females constitute 1,433,730 (52.4%).

The economic activities in Addis Ababa are diverse. According to official statistics from the federal government, some 119,197 people in the city are engaged in trade and commerce; 113,977 in manufacturing and industry; 80,391 Homemakers of different variety; 71,186 in civil administration; 50,538 in transport and communication; 42,514 in education, health and social services; 32,685 in hotel and catering services; and 16,602 in agriculture (CSA, 2007).

Figure 2. Map of Study Area



Source: Addis Ababa city Administration (2019)

3.2 Research Approach and Design

This study applied cross-sectional data collection (one-time research) was conducted. This is mainly because of the time and the resource available. With regard to the nature of inquiry concerned, the study engaged both descriptive and explanatory research. The descriptive method of research was used to describe the opinion, characteristic and behaviors of respondents on the study. In general, survey method was used in this study because the study aims to describe preferences, opinion, and attitudes of the respondents.

According to Creswell (2007) by using mixed approach, the study provides a better understanding of the problem than those using either qualitative or quantitative methods. In this context, the study employed both qualitative and quantitative approach to make the result more strong

3.2.1. Qualitative methods

Qualitative methods involve the use of varied empirical resources manly focus group discussion (FGD) key informant interview and observational. This study was used FGD to gather the necessary information. This approach allowed participants to articulate their life experiences in light of their own view and language. In particular, it helped to explore coping strategies and factors influence choice of coping strategies.

3.2.1. Quantitative method

According to Creswell (2009) quantitative method provides a quantitative or numeric description of trends, attitudes, or opinions of population by studying a representative sample of the population. In quantitative method, survey questionnaire with open-ended and close-ended questions were applied to collect the required information and data.

3.3 Sample Size Determination and Sampling Techniques

3.3.1 Sampling method for quantitative method

In order to select the participant's households in the study areas first full list of the households was collected from each study Woreda administration office and resettle area committee members. There was a total of 533 displaced households. Target household were resettled in four different areas i.e Network site (in front of koshe), Asko (Addis Hiwot), Jemo, kilento.

We determined the sample size by using sample size correction calculator formula that is mostly applied for the known population size. Accordingly, a representative/probabilistic sample was calculated to be 223.

To pick 223 sample households among the study households systematic random sampling technique was applied. Members of the selected households were further sorted for interviews.

Sample size for your study with known population size calculates as follows

$$SS_{kp} = \frac{S}{1 + \frac{S-1}{P_k}}$$

SS_{KP} : i sample size for the known population size

S : i ssamplesize for unknown population calculated

P_k : is known population size from which sample size is calculated

$$SS_{kn} = \frac{384.16}{1 + \frac{383.16}{533}} \quad SS_{kn} = \frac{384.16}{1 + 0.7188} \quad SS_{kn} = \frac{384.16}{1.7188} \approx 223$$

Source: CRS (Creative Research system), sample size formula, 2012

3.3.2 Sampling method for qualitative method

For the qualitative method, the researcher selects individuals and sites purposively from where all the necessary information could be obtained. The researcher intentionally selected Participants who has better (relatively) knowledge and experience on the research problem. Purposive sampling was employed to select 12 focus group participants out of 202 sample respondents based on serious of destruction experience. One FGD was arranged in two sites. This selection was done with the help of resettlement area committee, who have adequate contact with the community. These methods of data collection were done to get further insight on coping strategy lists and factors influence their choice as well as their outcome.

3.4 Data source and techniques of data collection

Both primary and secondary sources were used. Primary data was collected through household survey questionnaire, in-depth interview, FGD and case studies using guiding questions. Secondary data were gathered from books, electronic materials (websites), journal articles and related studies.

3.4.1 Household Survey

A community-based, cross-sectional study was conducted in May 2021. Data were collected by face-to-face interviews using a semi structured questionnaire by three trained data collectors. The questioner consists of 4 parts which contains 31 questions. The questionnaire was designed in English. The purpose of the questionnaire was to collect the necessary data from the sample households on general background, livelihood assets of households, which encompasses physical assets, financial assets, human assets,

Furthermore, the questionnaire was developed based on the livelihood Coping Strategy index (LCS). The LCS is developed by WFP used to understand long term coping capacity of households and measure severity weight used a proxy indirect of household food security. The LCS index has eleven questions which has four groups (one neutral strategies, three stress strategies ,3 crisis strategies and four emergency strategies). It evaluates household's coping strategies for the last 30 days and its severity with frequency categories ranges Neutral, stress, crisis and Emergency (WFP, 2016)

3.4.2 Focus group discussion (FGD)

The FGD was used to generate and obtain facts, opinions and attitudes about the subject matter. The FGD intended to find out livelihood coping strategies list and factors that influence their choice as well as outcomes sample households. More specifically, FGD was made to deploy

There were three FGDs held on different resettlement areas (Network and Addis Hiwot) six participated in each first and the second FGD were participants. This selection was done with the help of resettlement area committee recommendation who have adequate contact with the community. The discussants were from different age groups ranging 28 to 55 and above. The Researcher was the moderator of the FGDs and all FGDs were conducted using only note taking techniques after explaining the ethical consideration

3.5 Techniques of Data Analysis

3.5.1 Quantitative data

Data collected through the structured questionnaire were coded and then analyzed using the Statistical Package for Social Sciences (SPSS, version 16). The Chi-square test of independence, bivariate correlation, and logistic regression techniques were used to explore the relationship between dependent and independent variables.

The dependent variable of this study is whether a household adopted a particular coping strategy or not. To determine the dummy, a value of “1” was assigned to those households that adopted at least one measure within list of livelihoods coping strategies and “0” for those that had not adopted. Similar process was repeated to determine the dummy value for crisis category, stress group, migration, and temporary migration. Since the dependent variable is dichotomous (yes and no), a logistic regression was used to model the influence of explanatory variables on adopting different coping strategies. In the logistic regression model, the dependent variable becomes the natural logarithm of the odds when a positive choice is made and can be written as,

$$\text{Logit}(P_x) = \frac{\log P_x}{1 - P_x} = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \dots + \beta_jx_j \dots\dots\dots (1)$$

where,

P_x = Probability of adopting a coping strategy

$1 - P_x$ = Probability of not adopting coping strategy

β_0 = Probability constant

$\beta_1, \beta_2, \beta_3, \dots, \beta_j$ = Coefficient of the explanatory variables

$x_1, x_2, x_3, \dots, x_j$ = Explanatory variables (Azen, R. and Walker,2011)

3.5.2 Qualitative data

FGD data was analyzed qualitatively through direct quotes and qualitative data that resulted from note taking activities was transcribed, categorized and organized in to themes (objectives of the study) and expressed to give concrete meaning. The discussions integrated with findings of survey in view of substantiating the result.

3.5.3 Variables specifications

The dependent variable was coping mechanism measured by the 11 items of the LCS index- used by WFP. We measured coping mechanism as a dichotomous variable (yes/ no).

Those households who responded No to all eleven items in the LCS questionnaire are consider to be others of LCS (i.e. HH has not faced food shortage or money to purchase food) while the others who responded to at least one of the items Yes are considered user of LCS (i. HHs faced food shortage or money to purchase food). Score is a binary dependent variable in the model that takes Values where 0 represent no use of (stress, crisis or emergency) livelihood coping strategies and 1 represents use of LCS.

Independent variables included socio demographic factors (age, sex, marital status, family size religion, educational and occupational status of household head), financial variable (Income source, access to credit, saving), human Asset (skill, perceived health status, livelihood related training, Physical Asset related (house ownership, productive asset,)

3.6 Validity and reliability of data and techniques

The validity of this research is improved by incorporating only relevant questions in the questionnaires effective in assessing the issue of interest and helpful to measure what is intended to assess as is given in the research objectives. To insure objectivity, the researcher as much as possible, put limited influence on data collection. A one-day orientation will be given to data collectors on different parts of the questionnaire the data and on methods of data extraction. Supervisor will routinely check data completeness and accuracy. Based on the findings possible amendment will be made

3.7 Ethical consideration

Initial contacts have made with the resident committee members. I introduced myself and explained the purpose of the research. Quantitative survey respondents and qualitative informants were provided with detail explanation about the overall objective of the study in advance. FGDs and interviews were administered on the free will of discussants and interviewees. Prior to data collection, orientation was given to data collectors on how to fill and ask the questionnaire and sort of approaches to follow to sample households. Confidentiality was maintained by omitting personal identifiers.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

In this chapter, the main findings of the study are presented and discussed. Under the first section of the chapter, demographic and socioeconomic characteristics of displaced households are presented. Furthermore, the section presents the livelihood assets of Households, livelihoods coping mechanisms and severity weight, In the second section determinants for the use of livelihood coping mechanism of households in the study area are discussed.

4.1. Demographic and socio-economic characteristics of respondents

The mean age of the household heads for sample HHs were 42.75 years. Out of 223 households interviewed 43 % of them were female. With regard to marital status, 132 (59.2 %) were married, and 29(13 %) of the respondents never married. Divorced and widowed respondents constitute 12.6 percent and 15.2 % respectively. The mean years of education for household heads were found to be 4.1 year 's. regarding religious status majority of sample HHs are 140 (62.8 %) are orthodox, Muslim are second in number (23.2 %) and protestant are third 13.5 %. Large proportion (40.8%) of HHs heads was unemployed. The overall mean of family size of sample households was found to be 4.1.

Table 4 1: Socio economic status of households

Characteristics	Frequency N=223	Percentage (%)	Mean	SD
Sex of HH heads				
Female	96	43		
Male	127	57		
Marital status of the HH head				
Never married	29	13		
Married	132	59.2		
Divorced	28	12.6		
Widowed	34	15.2		
Age of the HH head			41.82	13.8
18-64	198	89.1		
≤ 65	25	10.9		
Educational level of HH head			2.69	1.43
unable to read and write	65	29.1		
Read and write	36	16.1		
First cycle (up to grade8)	64	28.7		
Second cycle (9- 12)	17	7.6		
College-university	41	18.4		
Religion of HH head				
Muslim	52	23.3		
Orthodox	140	62.8		
Protestant	30	13.5		
Others	1	0.4		
Occupation of household head				
Unemployed	91	40.8		
Employed (public or private)	84	37.7		
Own business	48	21.5		
Household Size			4.18	1.8
1-3	82	36.8		
4-7	135	60.5		
≤ 8	6	2.7		

4. 2 Financial Capital

4.2.1 Income source and saving

Financial capital is the most liquid asset which allows people to get ends met, smooth consumption, invest in productive assets, and sit out stresses and shocks. The commercialization or commoditization of urban livelihoods has important implications for urban households (Moser 1998). They have to pay for food, shelter, and urban services implying the importance of higher financial resources to cope with poverty. Thus, urban poor have to dig into their pockets to sustain their livelihoods by generating income either through wage employment or through self-employment in the informal sector.

During the interview, respondents were not eager enough to reveal their financial income and all source of all earnings. The surveyed displaced HHs link such assessments with NGO assistance and other benefits. Beyond the above-mentioned realities, studies recommend the use of income is assumed to be a good indicator of long-term standard of living, a more stable and better indicator of current livelihoods, and more realistic in urban economies where most people earn their living irregular employment.

Table 4 2: Income source and saving money

Unit	category	Engaged in any of LCS in the past 30 days?		Total n=223	χ^2 sig.<0.05
		No=138	Yes =85		
Income source type	self-generated	71(82%)	15 (17%)	86 (38%)	0.008
	support from others	10(19%)	41(80%)	51(22%)	
	Both (self-generate & others support)	57(66%)	29(33%)	86(38%)	
saving money	No saving	50(43%)	65 (56%)	115(51%)	34.10
	Have saving	88(81%)	20(18%)	108(48%)	

As can be seen from table 2, there are some little differences in income source among displaced households. Whereas a 22% of them rely on others support ,where as 38 %,38% HHs have to self-generated as well as from both sources respectively. So, this 22% dependent from others displaced HHs would be in a much difficult condition to provide the family with the necessary goods and services, send their children to school, and maintain decent family life.

Nevertheless, one has to keep in mind that large proportions of sample HHs (51.6 %) doesn't have savings. Among this more than half had struggle to purchase food for the last thirty days. The survey

finds out that, excepted saving money, there is significance difference in income source type among household heads.

FGD participant mentioned as follows;

when a husband and active family members suddenly died because of disaster the family with all the prime income, the wife finds herself at the controls of family affairs with limited choices and opportunities available so that it is a crisis. The dearth of sole income earner, household it is obvious to become helpless, impoverished, and loses the support from others. Then is the time for hunger and dependency on others assistance all.

FGD Addis Hiwot site narrates about spent saving.

Regarding spent saving after disaster government provide nearly 29 thousand birrs for each HHs, doing so has passed 4 yrs then after no one can visit except some researchers. Especially in this resettlement site so difficult to get job & price of good is very expensive. So that we are forced to spent saved money and sold extra household goods to purchase food for families.

4.2.2 Access to credit service

In this regard only, 25.6 percent of the HH indicated their access to credit, among those who have accessed more than half of them from informal source like kinship and neighbors. Table 3 depicts that of respondents using credit only 24.6% apply in LCS while 64.9. % didn't. The survey results show that, there is significant difference credit access and apply livelihood coping strategies as a result of food shortage or money to purchase foods.

Table 4 3: Access to credit among displaced HHs

Variable	category	Engaged in any of LCS in the past 30 days?		Total n=223	χ^2 sig.<0.05
		No =138	yes=85		
Access to credit service	no access	95(57.2%)	71(42.8%)	166(74.4%)	0.028
	yes-from formal organization	18(82%)	4(18%)	22(9.86%)	
	yes-from informal organization	19(65.5%)	10(53.5%)	29(13%)	
	yes- from both formal & informal	6(100%)	0(0 %)	6(2.7%)	

FGD participant narrate this issue as follows (Addis Hiwot and Network sites)

we of are beneficiaries of safety net through public work we got small amount of money to sustain life, but after a week period purchased food was finished before payment date will come. Then we got to grain shop ask to food on credit.

In the meantime, seeking in-kind or financial assistance from any NGOs, religious institutions and from neighbors are common ways of coping. If conditions are extremely difficult like current days (covid-19 pandemic) relying on neighborhoods and kinship assistance and loan are found to be important to cope financial difficulties.

4.3 Human capital

4.3.1 Household size, age

This study is based on information collected from 223 households. Of the 223 sample HHs, 132 (59.2%) are married and the remaining 26 (13%) are never married. Pre-existing knowledge states that demographic and socio-economic characteristics of households in Ethiopia are significant correlate to human capital and firm determinants for household livelihoods (Degefa ,2008).

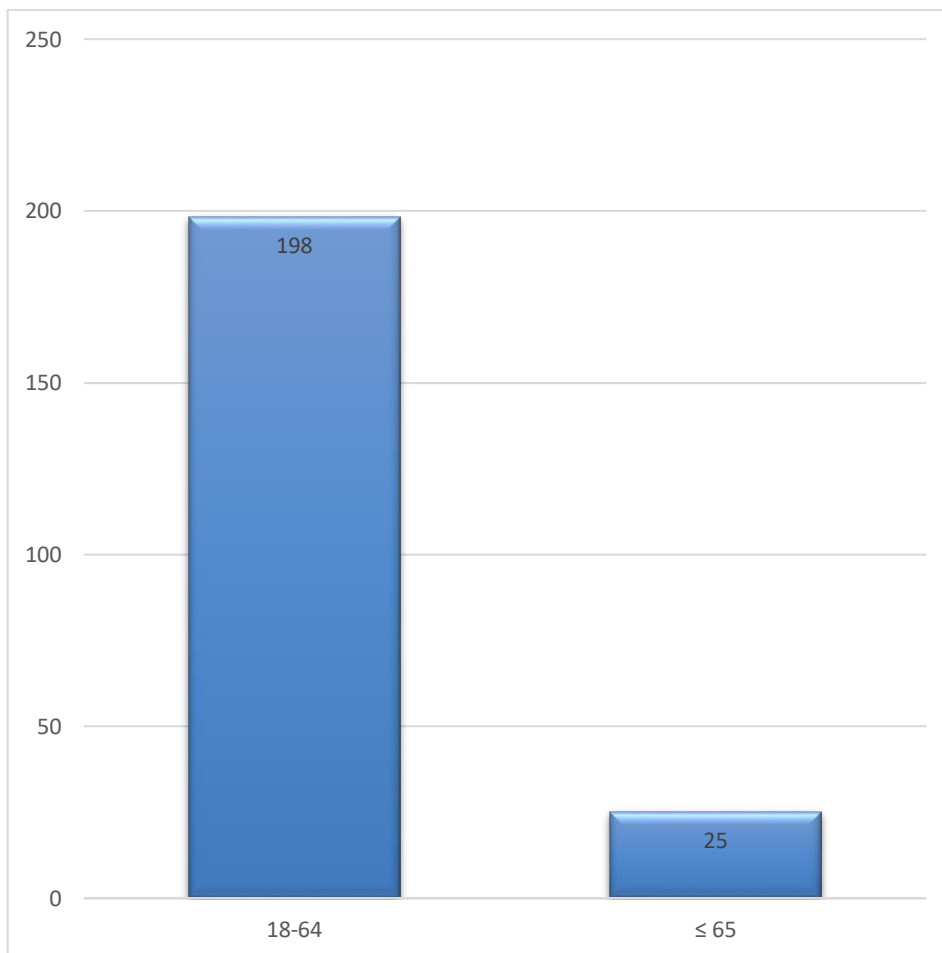
Total household size of the surveyed HHs is from 1-8 members, reflecting incidence of extremes in size. As can be learned from table 4, average household size is 4.2, which is below the average 4.9 for the country. The finding is within the range for the country. According to a study by the FDRE, average household size for the country stood at 4.9 per household in 2002 with poorer households having a larger family size (5.8) against the 3.9 per household in better off families. The implication from the data is surveyed households have larger family with the probability of falling into the poor category.

Table 4 4 .: Households size and age composition of head of household

Unit	Mean family size	Mean Age	SD family size/age
Household	4.2	41.82	1.8 /13.8

Age is one of the variables to analysis the economic dependency of HH heads and its implication for the livelihood situation of the households. As indicated in figure 3, the average age of HHs head 41. Then, as characteristic of labor availability, dependency and its implication for the livelihoods of the households, age distribution of the surveyed households was computed. The fact that a household heads is in the working age range have an implication for labor availability either for income-earning or other household responsibilities.

Figure 3: Age distribution of HH heads



4.3.2 Literacy

Another important factor strongly influencing the livelihoods of households and their probability of coping stress and shock is the educational level of the household head. An urban poverty study by Degefa (2005) in Ethiopia shows that, dropping some variables such as asset accumulation and age, as the level of education of the household head and its members rises, its living standard increases. Moreover, in Ethiopia many studies indicate that educational attainment, such as a university degree, is a good predictor of the financial and welfare position of a household.

If we have a closer look at literacy, 165 (73.9 %) households have lower levels of education (no education, read and write, primary school). However, there is significant number regarding higher level education. 41 (18.4%) HHs head hold a college or university degree. This implies that HHs in general are found at a less standing in attaining higher education.

Table 4 5: Educational Status of household heads

Unit	Freq N=223	%
unable to read and write	65	29.2
Read and write	36	16.1
First cycle (up to grade 8)	64	28.7
Second cycle (9- 12)	17	7.6
College-university	41	18.4
Total	223	100

The implication of the finding is that HHs are in a disadvantaged position in terms educational attainment with other related consequences. Then, it can follow that displaced households are exposed to risks i.e. low level of educational attainment, all indicators of the higher probability for the households to fall to cope displacement related life challenges.

FGD from *Addis Hiwot (Male –35 yrs)* narrates as follows:

I am working as a daily laborer and my income is very low. Due to my educational level, I have no formal employment; rather I have to work informally with low income. I couldn't buy enough food rather I always purchase additional food by credit from milling house.

4.3.3 Vocational skill and livelihood development trainings

DFID argued, sustainable livelihood can be achieved through high quality education, information, technologies and training, supportive and cohesive social environment, better management of natural, infrastructure and financial resources, and institutional environment that support multiple livelihood strategies (DFID, 2002).

In this context, role of capacity and skill development trainings in sustaining rural livelihood in global and national contexts must give high emphasis. It is because it can be one of the strategies to transform life and livelihood, achieve rural prosperity and rehabilitate from shocks/ disasters.

Table 6 reveals that out of 223 sample HHs 71 have vocational skill of any type (carpenter, hair dressing, tailoring, masonry etc.); only 28.66% respondents were involved in agriculture and non-agricultural activities applying their skills in household level. while 68.2% of them are doesn't have any vocational skill.

Concerning to livelihood development trainings (Business skill, marketing, urban farming) majority of HHs did not receive any training that helped their livelihood for the last five yrs. regarding short of food last month 20 (28.2%) of skilled and 32.6 % of trained HH heads are experienced. The survey results show that, there is no significance difference among households In vocational skill and livelihood trainings. In addition to available labor, trainings are important to undertake certain livelihood activity it provides the chance to improve the value of human capital.

A male FGD participant in Addis Hiwot indicated the contribution of training

Before the disaster, I had no any skill especially in beekeeping other than collecting material from Koshe and sealing to market. With the good heart of project head, I was started beekeeping near to my residence after I had trained for two weeks and get material. Now, I earn additional income from honey in addition to work home to home solid garbage.

But in this research different result is found no significance association between livelihoods relate trainings and application of LCS because of shortage of food or money to buy food for the last 30 days.

Table 4 6: Vocational skill and livelihood development training

Unit	Category	Engaged in any of LCS in the past 30 days?		Total n=223	χ^2 sig.<0.05
		No =138	yes=85		
Having vocational skills of different type	No	87(57.2%)	65(42.8%)	152(68.2%)	0.37
	Yes	51(71.8%)	20(28.2)	71(31.8%)	
Received livelihood skill development training for the last 5 year	No	107(60.5%)	70(39.5%)	177(79.4%)	0.388
	Yes	31(67.4%)	15(32.6%)	46(20.6%)	

4.3.4 Perceived health status of households

Table 4 presents that out of 223 households more than half 139 (63.3%) perceived that they are better healthy, 49(22%) HHs they are good health status, only 15.7percent perceived they are poor health status. More than 85% of HHs with Poor health condition has faced shortage of food or money to buy food for the last 30 days or prior to that. The survey result shows that, there is significant difference in health status and coping strategies application.

Further, FGD discussants also confirmed that health problem is as follows;

They said "if we are healthy we can work to secure our household, otherwise we cannot work and eat. Unquestionably, therefore, poor health condition of household head will be more likely engage in Sevier coping strategies.

Table 4 7 : perceived health status among displaced HH, Addis Ababa

Unit	Category	Engaged in any of LCS in the past 30 days?		Total n=223	χ^2 sig.<0.05
		No	Yes		
perceived health status of household heads	Poor	5(14.28%)	30(85.7%)	35(15.7%)	0.001
	Good	26(53%)	23(47%)	49(22%)	
	Better	107(77%)	32(23%)	139(63.3%)	

4.4 Physical Capital

4.4.1 House ownership and productive tools

Evidence suggests that shelter is one of the basic needs of human beings next only to food and clothing. It is also a source of identity that has considerable effect on psychological well-being of the inhabitants. Moreover, home ownership brings out significant economic security and social status to the household. Housing also acts as matrixes that strengthens social ties and develop social relationships. For the urban poor, housing is more than just shelter; it is also source of income by renting rooms or running domestic businesses (Moser, 1998).

In urban context, housing can be considered as the most essential physical capital. In this study, it was found important to assess whether there are differences in house ownership between displaced households. The result of the survey indicates there is significant difference in ownership of a house. While 56 % own a house while others live 44% households lived in rented government houses.

As of productive tool is vital for livelihood and means of earning income. The majority of the respondents who have no any productive tools work in livelihood activity. While only 24% having productive tools likes tailoring machine, waving tools, carpentry tools. Chi-square test also denotes a significant difference in house ownership across sample households at 5 percent (p-value of 0.012), but their insignificance difference in with passion of productive equipment.

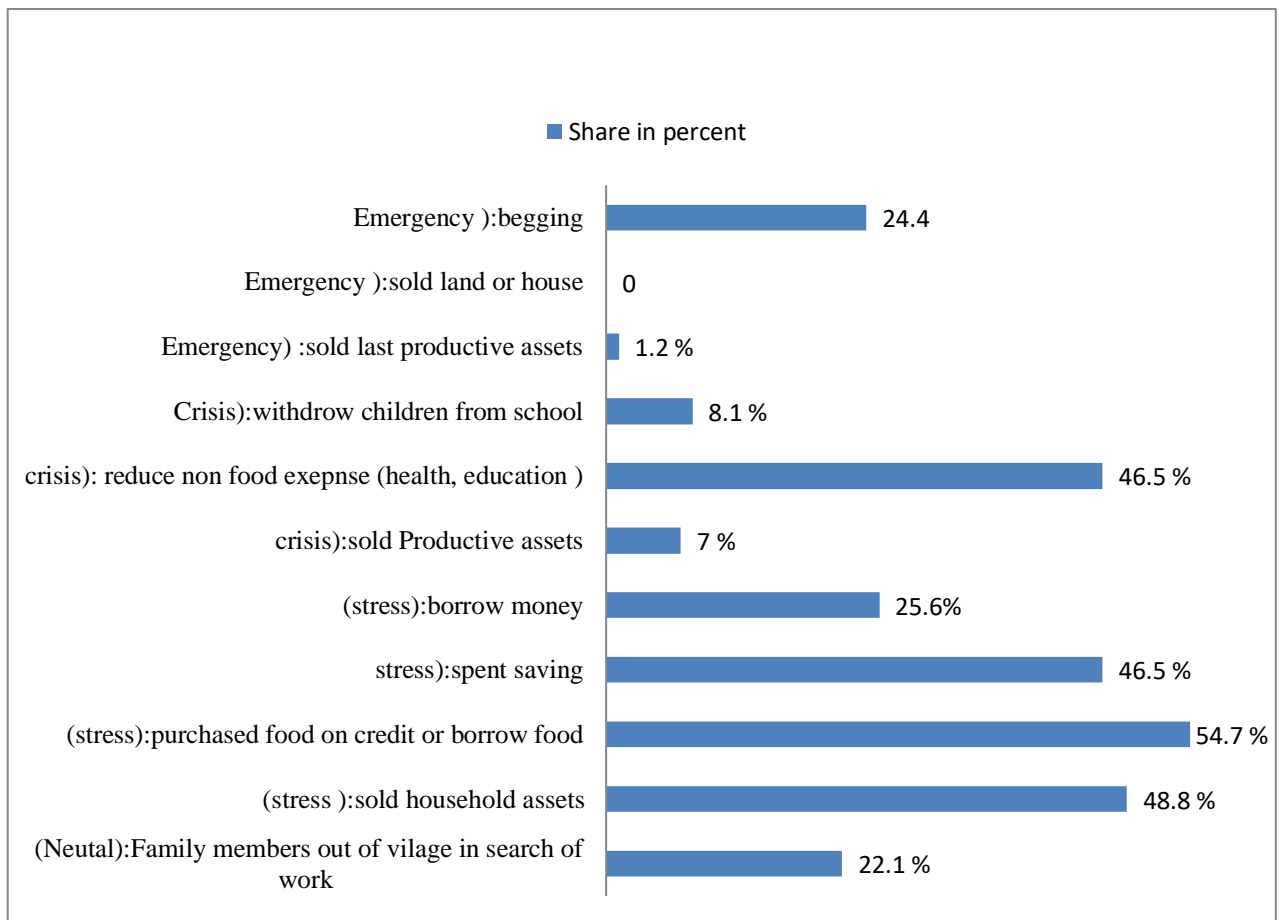
Table 4 8: House ownership and Productive asset

Variable	Category	Engaged in any of LCS in the past 30 days?		Total n=223	χ^2 sig. p<0.05
		No	Yes		
Ownership of housing	Owned	98	27(21.6%)	125 (56%)	0.012
	Rented (from Government)	40	58(59.2%)	98(44%)	
Possession of productive tool and equipment	No	104(62.5%)	65(38.5%)	169(75.8%)	0.851
	Yes	34(63%)	20(37%)	54(24.2%)	

5. Household level coping strategies

Households adopted a mix of coping strategies to respond to disaster. Figure 3 provides a combination of four major categories of coping strategies employed by households to respond and recover from the impact of the garbage hill slide disaster. The majority of the households adopted two or three strategies. Adopting four strategies were less common. When adopting one strategy, assets selling and purchase food on credit was the most preferred, while temporary migration was the least preferred option. However, households adopt a particular coping strategy based on the impact level of the disaster and the availability of assets.

Figure 3: Share of households using each coping strategy



the four most common livelihood-based coping strategies when faced with a shortage of food and Money to buy food are to: 1) purchase food on credit (54.7% of sample households); 2) sell household assets/goods (48.8%);3) both reduce health and education expenditures and spent saving (46.5%). 4) borrow money (25.6%).

as FGD participants from the Network site informed: “we first use up our own savings. When we finish our savings, we try to ask our relatives for help. If we fail to get assistance from our friends, neighbors, we then approach the local grain store to borrow grain from them”.

Similar findings were revealed among flood induced displace in Dredawa purchasing food on credit 68%, selling household assets 5%, borrow money 11% is also one were strategies used by respondents (Eleni, 2011). A study taken by Gaillard et al, (2008) in Philippine found that households cut nonfood expenditure like medical, education, transport and social events after the incidence of flood.

FGD Addis Hiwot site narrates about spent saving.

Regarding spent saving after disaster government provide nearly 29 thousand birrs for each HHs, doing so has passed 4 yrs then after no one can visit except some researchers. Especially in this resettlement site so difficult to get job & price of good is very expensive. So that we are forced to spent saved money and sold extra household goods to purchase food for families.

Many of the short-term coping strategies adopted by poor people could not be termed as sustainable. For instance, cutting expenditure on education, medical and transport costs in the short term may undermine human capital in the long term (Skoufias, 2003). ure 2). In the context of temporary migration of young members in search of work, 21% of the households adopted this strategy.

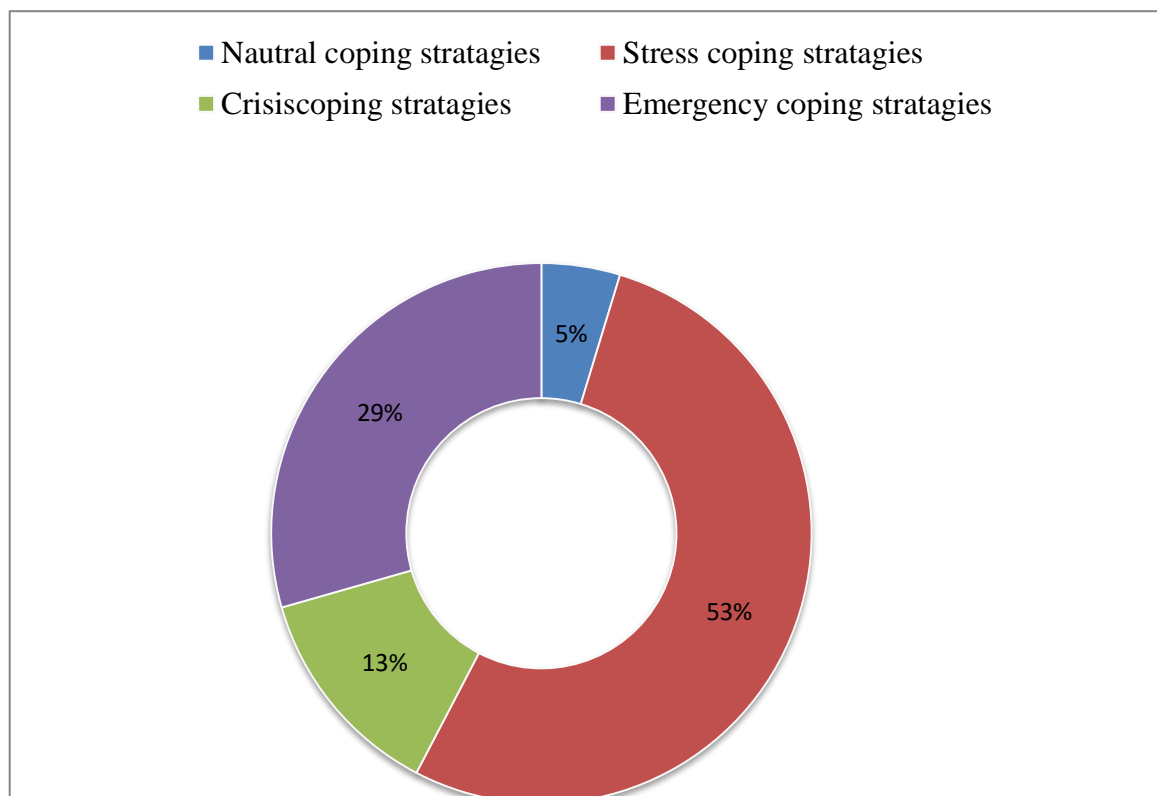
FGD participants discuss the issue as follows:

Government officials had promise to support until full recovery, but it doesn't happen yet. Rather when we go to woreda office to ask support like other poor community members, they told us they have got enough support from government. Even if government collects so much money from volunteers by the name of victims we didn't get enough support for full recovery. We are asking government by court to provide enough recovery support. This create misconception on supporters, in between families pass under difficult situation, families use walking as means of transport, reduce number of health follow-ups, reduce participation in social and religious event.

Degefa (2008) discusses types of coping strategies particularly employed in developing countries like Ethiopia. As to him, Ethiopian households use different coping strategies in order to overcome food shortage and survival for poor rural households borrowing food, charcoal production, and migration are of critical means to ensure living in Ethiopia (Suneetha and Solomon 2012). In this regard this research finds 7.8% of study HHs increase family members out of the village in search of work (migration).

Regarding to group of coping strategies that are adopted is majority of HHs use stress strategies 45 (52.9%), form the group of stress strategies purchase food on credit or borrow food were the most common strategies used, while 25 (29.4 %) of them used emergency strategies, the most widely used are begging, and 11(12.9 %) used crisis strategies, reduce nonfood expenses (education, health,) were mostly common. Only 4.7 percent of households use neutral coping strategies which is migration search of work. Of the total the respondents 29.4% engaged emergency coping strategies. This is the sever one among four LCs. This finding constant with the Study conducted in Addis Abeba 10% FHHs sending household members to begging, and sending children to eat with the nearby neighbors as coping mechanism at time of food shortage or money to buy food (Rehel G 2010).

Figure 4: Type of coping strategy using households



6. Factors associated with post disaster coping strategies

To determine the association of independent variables with coping strategies chi square and bivariate logistic regression analyses were carried out. In chi square test analysis factors including sex, marital status, household size, education status, occupation, income source, access to credit, having vocational skill of any type, health condition, house ownership is significant difference among households to adopted in any of coping strategies in at 5 percent ($p < 0.05$).

Variables that were finally tested in the binary logistic regression model were found to be significant in determining a household's livelihood coping strategies in Addis Ababa. These variables include age of household's heads, education status, access to credit, family size, house ownership and possession of productive tools.

The variable **age of household heads** was found to be significant at the 1% level ($p = 0.000$) and had a negative correlation with the household food security status, which is in contrast to what was expected, with a beta coefficient (β) = -0.004 and an odds ratio ($\text{Exp}(\beta)$) = 0.996. The model predicts that for a one unit increase in age of household heads, the household would be less likely to apply the lists of

livelihood strategies by 0.006 times while holding all other independent factors constant.

The variable **education status** was found to be significant at the 5% level ($p = 0.01$) and was positively correlated with the household food access for the last thirty days, as was expected, with a beta coefficient (β) = -0.587 and an odds ratio ($\text{Exp}(\beta)$) = 1.057. The model predicts that when educational status increased, the odds of a household to be adopt LCS is less likely while holding all other independent factors constant. The variable access to credit was found to be significant at the 1% level ($p = 0.028$) and was negatively correlated with the household food security status of households, contrary to what was expected, with a beta coefficient (β) = 0.360 and an odds ratio ($\text{Exp}(\beta)$) = 0.28. The model predicts that when a household has access to credit, the odds of a household to face food shortage or money to purchase food is increased while holding all other independent factors constant.

According to Mulumebet (2010), family size is one of the most important determinants of household's food security status (Access). Thus, high number of family member has impact on household's food security status when the age of the members is below 18. WFP (2008) Food security and Vulnerability Analysis survey in Cambodia confirmed that relation between wealth, livelihood asset ownership and house hold size.

The variable size of Households was found to be significant at the 1% level ($p = 0.001$) and was positively influenced the household food shortage or money to purchase foods, with a beta coefficient (β) = -0.181 and an odds ratio ($\text{Exp}(\beta)$) = 5.408. The model predicts that with an improvement increase household size, the chance of a household having food or money to purchase food will increased.

The variable displaced households housing ownership was found to be significant at the 1% level ($p=0.001$) and positively influenced the household food shortage or money to purchase foods, with a beta coefficient (β)= 3.418 and an odds ratio ($\text{Exp}(\beta)$)=3.164. The model predicts that having own house would increase the likelihood of a household to having food or money to purchase foods.

The variable Households income source heads was found to be significant at the 1% level ($p = 0.004$) and was negatively correlated with the displaced household coping strategies, contrary to what was expected, with a beta coefficient (β) = -0.069 and an odds ratio ($\text{Exp}(\beta)$) = 0.391 . The model predicts that when a household has the odds of a household to apply list of livelihood strategies to get food or money to purchase food shortage is less likely while holding all other independent factors constant.

Educational levels of a population have an impact on accessibility to food which is the more educated generally have a greater ability to cope with a variety of difficult situations, and are likely to have a higher probability of finding employment (WFP, 2008).

Regarding this similar result is found by this research, education status was found to be significant at the 5% level ($p = 0.01$) and was positively correlated with the household food access for the last thirty days, as was expected, with a beta coefficient (β) = -0.587 and an odds ratio ($\text{Exp}(\beta)$) = 1.057 . The model predicts that when educational status increased, the odds of a household to be adopt LCS is less likely while holding all other independent factors constant.

FGD from *Addis Hiwot (Male – 35 yrs)* narrates as follows:

I am working as a daily laborer and my income is very low. Due to my educational level, I have no formal employment; rather I have to work informally with low income. I could buy enough food rather I always purchase additional food by credit from mill house.

Other FGD participant from Network site expressed the above idea as follows: -

The major cause for my suffering is my educational level. Education is important criterion to be employed even in to do cleaning work in private organization, wealthy family resident houses and to earn income. But I quite my education at grade two, Consequently, can't purchase enough food to my family, I always purchase food on credit is my monthly experience

Healthy living is important to undertake certain livelihood activity. Health is vital in determining the quality of labor. Frequent illness and disability leading to reduced productivity, depletion of savings and inability to earn more Incomes (Gari, 2002). Studies in India have also shown due to poor health that lead to reduced income and increased health expenditure (Basu *et al.*, 1997; Gupta, 1998). The result was found that household that experienced poor health conditions was engaged in borrowing cash, sold productive assets as a compensation strategy. Our result was also partially supported by who reported that households with ill members in India tend to borrow money in the face of shocks. The association between the perceived health condition among garbage collapse induced displaced HHs and practicing of LCS is found to be significant $p < 0.05$ ($p = 0.025$)

Further, FGD discussants also confirmed that health problem is one of the important factors. They said *"if we are healthy we can work to secure our household, otherwise we cannot work and eat. Unquestionably, therefore, poor health condition of household head will be more likely engage in Sevier coping strategies.*

Degefa (2008), he argued that the income of the people who earn from low and single sources neither meet the basic needs nor save some amount of money as well as they face inability to meet basic household needs which is a very serious issue for their livelihoods. According to WFP (2008), research unemployment's are more likely to be vulnerable to food insecurity compared to those who have job. Income source are significant determinant on household coping capacity at time of disaster studies conducted in Tanzania. This study supports the above-mentioned literature.

According to WFP (2008) Food security and Vulnerability Analysis survey in Cambodia confirmed that correlations between wealth and livelihood asset ownership. Food insecure house hold are more likely to be productive asset less or poor (Land), this can push households in to extreme poverty as they resort to harmful coping strategies (such as selling productive assets). This study confirmed the above-mentioned survey in Cambodia, the likelihood of facing food shortage or money to purchase food is higher among households who lived in rented house.

Financial resources consist of available stocks such as bank deposit/saving, access to credit (formal and informal) institution and pension which can determine the livelihood strategies (DIFID, 1999 and Kollmair, et al 2002). Similar finding was obtained from this study there is strongest relation with access to credit service and saving and coping capacity of displaced households in the study area). compared to these house household members who is don't had any saving money, the chance to faced shortage of food or money to purchase food for the last one month is 28% times high than those who has not.

Table 4 9: Determinant of coping strategies among Households

Variables (n=223)	B	S.E.	Wald	Df	Sig.	Exp(B)
Household head's Sex	0.229	4.971	0.002	1	0.963	1.257
Household head's age (years)	-0.004	55.481	0.052	1	0.001	0,996
Household head's marital status	2.695	7.151	0.142	1	0.706	14.808
Size of Households	-0.181	0.150	1.46	1	0.001	5.408
Household head's education level	-0.587	0.223	6.95	1	0.01	1.057
Religion	-0.165	0.343	0.23	1	0.63	1.86
Occupation of household head	-0.708	0.357	3.92	1	0.05	0.391
Household income source	-0.069	0.308	0.05	1	0.004	0.391
Having savings	-1.377	0.576	5.71	1	0.08	0.21
Access credit service	0.360	0.334	1.17	1	0.028	2..851
Having Vocational Skill	-0.184	0.516	0.13	1	0.72	0.045
Livelihood training	-1.667	0.649	6.59	1	0.01	3.035
Household heads health condition	-1.527	0.388	15.46	1	8.44	8.707
House ownership	3.418	0.644	28.15	1	1.001	3.164
Posse productive tools	4.204	4.864	0.747	1	1	0.387

CHAPTER FIVE: CONCLUSION AND REOMENDATION

5.1 Summary

Food insecurity is very critical issues in many developing countries like Ethiopia, in Reppie solid waste induced displaced HHs in Addis Ababa the issue is very immense and urgent. About 38.1 % of HHs reported severe shortage of food or lack of money to buy food for the last 30 days or already had faced the crisis. Among those engaged in LCS it is found that 52.9. %of HHs were use stress coping strategies such as purchase food on credit, spent saving, borrow money, sold household goods /assets. The predominant stress coping strategies used by HHs were purchased food on credit (54.7%) and spent saving (46.5%) respectively. 29% of HHs respondent were applied the worst coping strategy, which is emergency strategies, of which begging accounts for 24.4%. Crisis strategy is also widely practiced by HHs which accounts for 13%, among crisis LCS reduce non-food expenses such as education, health etc was the major one (46.5%). The least practiced LCS strategy by HHs was neutral strategy which accounts for 5%. In addition, the study found out that coping capacity of HHs are significantly associated with household size, education level, occupation of household heads, HH income source, having vocational skill, perceived health status, ownership of house, at 5 percent ($p < 0.05$).

5.2 RECOMMENDATION

- This study identified food insecure among displace Households are critical so that to address this key issue, an emergency support intervention must be carried out as a short term.
- Majority of the HHs participated in this study are unemployed however they are in productive age range therefore the government and/ or NGOs must provide livelihood skill development training based on HHs experience, interest, age, gender, etc. as part of LCS to address the food insecurity in the long term.
- Access to credit service is very critical to HHs therefore the government, civil society organizations and NGOs must arrange to HHs to have access to credit service to run own a business, to purchase productive assets, etc. however credit service must be going with providing livelihood skill training as well as devise a means to monitoring HHs business progress.
- We recommend to carry out further in-depth and largescale study by the concerning body to understand displaced HHs situations and to develop effective LCS.

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Appendix 1

ADDIS ABABA UNIVERSITY CENTER OF DEVELOPMENT STUDIES FOOD SECURITY AND DEVELOPMENT PROGRAM

Questionnaire

I am a post graduate student at Addis Ababa University in the department of food security and development studies. I am conducting research on livelihood coping Mechanism of Reppie Solid Waste Collapse Induced Displaced in Addis Ababa in partial fulfillment of the requirements for the completion of masters program. Thus, this questionnaire is designed to collect information on livelihood coping Mechanism of Reppie Solid Waste Collapse Induced Displaced. Since the information you provide is highly valuable to the success of the study, you are kindly requested to give your genuine responses for the following questions. The information you give will not be used for any purpose other than the achievement of the objectives of this research.

Thank you for your cooperation!

Part I: General Information

Interviewer's Name: _____ Signature: _____ Date: _____

Name of Resettlement site/ woreda _____

Questionnaire ID Number:
.....

General Instruction: Put the code number of responses in the corresponding boxes for close Ended questions and provide detail information you can for the open ended questions (YOU ARE NOT RESTRICTED TO THE SPACE PROVIDED FOR OPEN ENDED QUESTIONS)

Part II : Demographic and Socio-Economic Information

1. Sex of the Household heads: (0= Female, 1=Male).....
2. Age of the household heads (in complete year).....
3. Current marital status (Never Married=1, Married=2, Divorced=3, Widowed=4.....
4. Household size: Male _____ Females=_____, Total=_____
5. Educational Level of Household head (unable to read and write=1, read and write only =2, first cycle (grade1-8) =3 second cycle =4, collage & university =5.....
6. Religion of Household Head: Muslim=1, Orthodox=2, Protestant=3 Catholic=4, =others = 5---
7. Occupation of Household head: Unemployed =1, employed (Private & public sector) =2, Own business =3, Retired=4

Part III: Livelihood Assets

1. Financial Assets

8. What is your source of income? (You can choose more than one)

1. Self Generated

- 2. support from others
- 3. Both (1& 2)
- 9. Do you save money? (No=0, Yes=1).....
- 10. Do you have an access to credit service? (No=0 (**SKIP TO Q.12**), Yes=1).....
- 11. **If yes to question number 10**, which one of the following source of credit is available?
 - 1. From formal institution =1,
 - 2. From informal institution =2,
 - 3. From both formal and informal Institutions =3

2. Human capital ((skills, health, ability to labor or capabilities)

12. Which one of the following skills do you possess? **Indicate by putting “ yes” under the skill**

Skills	Masonry	Carpentry	Tailoring	Traditional healing	Pottery works	Weaving and hand craft	others
Yes							

13. Have you received any training on livelihood skill development? (No=0 (**SKIP TO Q.15**), Yes=1).....

14. If say yes. What type of training did you receive? (Business related=1, vocational related =2, urban Farming related =3, health care and nutrition related=4, other

15. How do you perceive the health status of households in general?

- 1. Poor health
- 2. Moderately healthy
- 3. Better health

3. Physical (housing, productive goods and equipment)

16, House ownership

- 1. Owned
- 2. Rented from government
- 4. Other specify.....

17. Indicate tools and equipment you possess by putting “yes” corresponding to items

Skills	Enjera & bread making equipment	Carpentry Tools	Tailoring machine	Construction materials	Pottery equipment	Looming equipment	Others specify
Yes							

Section IV: Livelihood coping strategies (LCS) Livelihood Coping Strategies

This indicator is derived from a series of questions regarding the household's experience with livelihood stress and asset depletion during the 30 days prior to survey. It contains 11 questionnaires (One neutral strategy, four stress strategies, three crisis strategies, and three emergency strategies) were asked based on the severity of the strategies. The higher the CSI value, the higher the degree of food insecurity.

During the past 30 days, did any one in your household have to engage in any of the following activities because there was not enough food or money to buy food?	A= No, because I did not face a shortage of food or money to buy food B =No, because I already sold those assets, in the last 12 month, or have engaged in this activity and can not continue to do it C= yes D= N/A	Severity Weight 1= neutral 2= stress 3= crisis 4=Emergency
1. Increase Family Members out of the village in search of work (Migration)		1
2 Sold household assets/goods (radio, furniture, refrigerator, television, jewelry etc.)		2
3. Purchased food on credit or borrow food		2
4. spent Savings		2
5 Borrow Money		2
6. Sold Productive assets (sewing machine, baking material, looming material, washing machine, bicycle etc		3
7 Reduce non-food expense on health (Medication) and education		3
8. Withdraw children from school		3
9.sold Last productive asset		4
10. sold house or land		4
11 Begging		4

Appendix 2

Focus Group Discussion Guide

1. What are the major constraints you faced after you resettled in this new area?
2. Are you able to meet the basic necessities of life (like food)? Why?
3. What are major coping mechanisms mostly applied at time of food shortage / money to buy food
4. Which type of coping mechanism has mostly common for households
5. Which households are the most vulnerable?
6. What are the factors to influence to choose such coping mechanisms?