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OF SCIENCES AND LITERATURE

**Understanding the Status and Mechanism
of Economic Development and Its Impact
on Poverty Reduction and Income Generation
in Least Developed Countries (LDCs)**

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Abstract

Agriculture and Agribusiness is the world's largest industry in terms of its contribution to the process of economic development and livelihood options for the poor, particularly in underdeveloped nations. Agriculture dominates the Afghan economy contributing to 50% of the total GDP. The need to improve agricultural productivity and access to the market is one of the pressing challenges that small-scale farmers in rural areas of Afghanistan are confronted with. There are several factors related to these pertinent issues that impede their ability to increase their income. Inadequate production and sharing of knowledge, limited participation of farmers in the market, inadequate infrastructure and poor design of innovations are among the most important obstacles contributing to low production. In this endeavor, agro-enterprise is an opportunity through which small-scale marginalized farmers can organize and strengthen themselves into collectives to increase their bargaining power in the market place and exploit values of economies of scale. Agro-enterprise entails practices needed to enhance farmer's productivity leading to higher standard of living. However, this research attempts to provide and analyze the important components of agro enterprise market-led initiatives and its contribution to local economic development in Afghanistan, in an effort to elaborate the catalytic role of NGOs in the formation of a suitable agro-enterprise platform for small-scale farmers in the context of developing countries.

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Sincerely,

Ezmaray Siddiqi

List of Acronyms

ADA	Agro-enterprise Development Alliance
AED	Agro-Enterprise Development
ASMED	Afghanistan Small & Medium Enterprise Development Project
ANDS	Afghanistan National Development Strategy
CRS	Catholic Relief Services
SME	Small and Medium Enterprise
SHG	Self Help Groups
CIAT	International Center for Tropical Agriculture
FAS	Foreign Agriculture Services (U.S Department of Agriculture)
GDA	Global Development Alliance
GDP	Gross Domestic Product
GH	Greenhouse
HARC	Himalayan Action Research Center
ICARDA	International Center for Agriculture Research in Dry Areas
IMT	Intermediate Means of Transportation
KG	Kitchen Garden
LDC	Least Developed Countries
MAIL	Ministry of Agriculture Irrigation & Livestock
MRRD	Ministry of Rural Rehabilitation and Development

NGO	Non-Governmental Organization
NRC	National Research Center
USDA	United States Department of Agriculture
USAID	United States Agency for International Development
WDO	World Development Bank
AHH	Age of Household Head
A-income	Average Income
AIM	Average Income of Males
AIF	Average Income of Females
CDFP	Cobb-Douglas Production Function
CHD	Children
CSO	Central Statistical Office (Afghanistan)
CPT	Capital (\$)
DR	Dummy Variables in Rural Areas
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HDI	Human Development Index
HH	Household Head
HM	Household Members
MEF	Mincer Earning Function
TFP	Total Factor Productivity
T-income	Total Income

T-HH income	Total Household Income
TR	Total Revenue

1. Chapter

Introduction and Aim of the Study

Background of Study

Afghanistan is one of the developing countries in the world. More than three decades of war have destroyed all economic sectors in Afghanistan, which means that Afghanistan is an extremely poor land locked country and highly dependent on foreign aid. Much of the population lives below the poverty line of 1 \$ per day. Most of the population still suffers from basic needs including shortage of housing, electricity, medical care, and insecurity. It will take a long time for the Afghan government to restore the economic sector and to reach the level of other developing countries in the world. The majority of the Afghan population lives in rural areas and works directly in the agriculture sector. Much of the population living in these, areas is poor and cannot provide enough income to cover their needs for food and other basic requirements in the community. As in other developing countries, people in Afghanistan have limited economic opportunities and an underdeveloped market beside other socio-economic problems. They have a low human development index (HDI) when compared to other developing or developed countries in the world. The poverty rate and unemployment rate are very high in Afghanistan.

Therefore, decreasing the unemployment rate and poverty reduction are the two policies taken into account by the government and international donors to reduce it and to try to help people to increase the living standard. According to the report of the central statistical office in 2014, between 60% and 70% of the population is living in the rural areas. They highly depends on agricultural products and services. 35% of the total GDP is due to agricultural products and services and is exported to foreign countries. The main source of household income is derived from the agriculture sector but during the wars and years of drought, most of the fields and gardens were destroyed and farmers still have financial problems resulting from this. The household income framework provides a general approach to understand how people make a living and to comprehend circumstances within which people live and the assets available to them. Household members

synthesize their abilities, skills and knowledge with different resources to build activities and create the possibility for a higher living standard for themselves. Households are interested to increase their income in order to increase the level of their welfare (Israr, M., 2010). Household income is derived from farm and non-farm activities. Sources of income from non-farm activities includes employed, self-employed, social-transfer, NGO income, saving, and remittance. Farm sources of income includes farming, livestock and narcotics.

Some of these sources may be different compared to other countries. Agriculture is one of the main sources of income of households, and it is the motor of economic growth in many countries. By developing this sector, the poverty rate can be decreased by direct and indirect means. The mechanization of the agricultural sector and use of new technology leads to a decrease in the poverty rate, generates employment and raises welfare in the long term. To reach this goals, it is important that the land and human resources are used efficiently (World Bank,2008). According to the World Development Report 2011, three out of every four poor people in the developing countries live in a rural area and most of them depended directly or indirectly on the agricultural sector for their livelihoods. The agricultural sector made up 60% of total employment, meaning that three out of five jobs had their main source of income in farm related activities (World Bank, 2013).

Household income in urban areas was higher and households had more possibilities in this area for income generation than in the rural areas of Afghanistan. Most of the households in urban areas have more access to engage in activities for income generation than in the rural area. A number of factors could be affected by this issue include insecurity, lack of capital, loss of donor aid, inadequate infrastructures, three decades of war and corruption. To decrease poverty in rural areas, the increase of agricultural productivity is one of the best policies that the Afghan government can take in to account in order to reduce poverty and to increase the employment rate in that area. This can be achieved by agricultural mechanization, offers credit to the small farmers,

increasing the education level of farmers and improving the irrigation system. However, in the urban area of Afghanistan, the alternatives to an increasing household income are different. It should be possible to increase household income in the urban area if these factors are achieved: support of industrial sector, increase of the activities in the service sector, support of private investment, encouraging the FDI in Afghanistan and speed of the education. Achieving these factors should lead to an increase of household income in these areas too.

Statement of the problem

Agriculture and Agribusiness is the world's largest industry in terms of its contribution to the process of economic development and livelihood options for the poor, particularly in underdeveloped nations. Agriculture dominates the Afghan economy contributing to 50% of the total GDP. The need to improve agricultural productivity and access to the market is one of the pressing challenges that small-scale farmers in rural areas of Afghanistan are confronted with. There are several factors related to these pertinent issues that impede their ability to increase their income.

Like other developing countries, poverty and a high unemployment rate are quite visible in the rural and urban areas of Afghanistan. People in Afghanistan are deprived of education, food, clothing and other basic needs. Industry in the urban regions of Afghanistan is not yet technically advanced and rely on manufacturing of traditional goods. A small proportion of the population is employed in this sector and thus generate their livelihoods. However, a large majority of the population lives in the rural areas and is highly dependent on the agricultural sector, directly or indirectly. Furthermore, internationally funded social-transfer programs, agriculture and livestock help are the main contributors to the household income of the marginalized population of Afghanistan. Development of these sources in Afghanistan has a potential impact on the poverty and unemployment rate in the country. In the given circumstances, a number of development policies and strategies have been developed and implemented by the government in order to improve the situation of household livelihood. Nevertheless, these policies have accomplished little success in Afghanistan due to a high level of corruption in the society. Therefore, the main problem is preventing a significant portion of households to enjoy the benefits of such projects in compare with other countries policies. As a result, the situation

brings a lot of disappointment to the households, which compels them to immigrate to (relatively) developed countries. Along with the cross-border migration, a pertinent pattern of internal-displacement may happen throughout the country. A great number out of the population associated with agriculture and livestock migrates to the urban centers of the country because of i) many years of drought, ii) low market value of their products and iii) expensive agro-inputs which include chemical fertilizer, pesticides, irrigation cost, seeds, machinery and its operational costs. It is an ongoing problem for the Afghan government to strengthen such policies or projects, which could mobilize this demotivated population to stay in the areas of their origin.

The current situation raises a question: why after fourteen years of (inter/trans) national developmental interventions, the household situation in Afghanistan is increasingly worsening? Actually, both, i.e. rural and urban households, have certain assets and resources contributing to their income generation, which are either not useable or not effectively exploited. The situation demands to investigate how a household can have the maximum advantage of these assets and resources. In order to identify the factors affecting household income and (potential) strategies improving and making resources accessible to the households) a number of economic and statistical theories have been considered and analyzed for this research.

Research Questions

The general research question of this thesis is:

1. How do Agro-enterprise initiatives by Catholic Relief Services (CRS) help the local farmers to take their agricultural products to the market?
2. What are the sources of household income in Afghanistan?

Research Objectives

The main purpose of this research is to assess the core status of local economic development through agribusiness intervention. The outputs of this research will serve as credible academic and practical source for future researchers and academia.

Furthermore, this thesis attempts to provide and analyze the important components of Agro-enterprise market-led initiatives and its contribution to local economic development.

The overall objective of the study is to identify the determinants of household (farmers') income in Afghanistan. The research intends to understand and evaluate income-generating factors. The research is structured into five Charters. The research will be based on qualitative research, a literature review and an analysis of the agro-enterprise development approach in the context of developing countries. Chapter 1 is the introductory part, which gives the background of the research. Chapter 2 gives the introductory literature review and theoretical findings on economic development. Chapter 3 discusses the general landscape of agriculture in Afghanistan and an overview of Herat province. In chapter 4 role of the NGOs in rebuilding Afghanistan's agriculture and specifically CRS will be critically looked at in an attempt to find out and measure the impact and change that has been brought in the target area since its inception. Chapter 5 will look into the work of both Himalayan Action Research Center (HARC) & Catholic Relief Services (CRS) as two distinguished NGOs in the field of agro-enterprise development cooperation.

The overall objective of the study is to identify the determinants of household (farmers,) income in Afghanistan. The study intends to understand the role of agrisuness in income generation among the households and communities.

To achieve this, the study's specific objectives are:

1- To estimate and develop potential determinants of household income, such as household labor force, the education of the household head. These are referred as decomposable variables, as they can be analyzed at both the community and the household level.

2 - An assessment of CRS data indicates that linkage of farmers' clusters to markets may have a direct positive impact on socioeconomic development of local communities in Herat districts.

3- An analysis of data from CRS shows that, if farmers' capacities are built on market-led agriculture, methods of cultivation and post harvest techniques, then their productivity will increase which leads to income generation within the household.

4- CRS and HARC data assessment proves that, if farmers' are provided with better materials and introduced to concepts of value addition, then they will find the opportunity to generate more income.

Significance of the Study

Agriculture and agribusiness have been a core part of the development efforts in Afghanistan for many years. Agriculture is seen as the backbone of the rural economy and a potential driver of the overall economic development of the country (CRS, 2007). According to MEDA (2009), Agriculture and agribusiness serve as the basis of Afghanistan's economic infrastructure. Previously, Afghanistan held a substantial piece of the dried fruit and nut market; however, years of conflict and continued instability have devastated the once strong national infrastructure, including processing facilities. Despite these facts, the agriculture and livestock industry still flourish today in rural areas of the country. The agricultural sectors, including the areas of production, business and processing, have been increasing significantly due to support from a wide variety of donor projects and governments (p. 2) "Recent investments in infrastructure and infusion of capital into Afghanistan have created new opportunities for agribusiness and contributed to growth in the agriculture sector. For example, improvements in roads and irrigation systems, expansion of food processing facilities stimulated growth" (CRS, 2007). Moreover, introduction of concepts such as agro-enterprise, new cultivation methods, the value addition, cold chain processing, increasing demand for agricultural goods and rising export have all contributed to growth in the agriculture economy, (CRS, 2007).

The majority of the population of Afghanistan lives in rural areas and therefore, depends on agriculture for their livelihood. In remote areas, agriculture and livestock for subsistence and livelihood options are the main economic activity. Improving access to market and marketability is one of the core challenges rural farmers are facing. The

productivity of agricultural output by small-scale farmers is limited due to poor infrastructure, traditional type of production and cultivation, high transaction costs because of poor road conditions and inadequate packing standards leading to product waste and losses, large marketing margins and poor market integration have all influenced the income of the farmers negatively. However, for the next several years, significant interventions are required to transfer traditional agriculture into a modern one. Indeed concepts such as agro-enterprise, which includes effectual mechanisms of a modern agriculture system, will over time contribute to an agriculture industry that will benefit virtually all farmers within the rural areas of the country. The local and central governments are unable to provide effectual incentives such as transportation services, modern technology, large scale storage, processing equipment's or, marketing opportunities to farmers in most rural areas of the country. Therefore, much work is required to enable the poor to benefit from improvements in the agriculture economy. The international donor community and NGOs have devised various developmental projects and strategies for ending such constraints. However, the fulfillment of these missions still requires the immense commitment of all the stakeholders, including the government.

In order for Afghanistan's agriculture sector to get a foothold on the ladder of economic prosperity, as traditional as it is, there is a vital need and considerable support to accomplish this mission. Therefore, this research will observe the degree of initiatives on the part of the donor interventions in the sector through (NGOs) giving Afghanistan's agriculture sectors a real chance to develop. In addition, attention will be paid to some innovative initiatives, such as agro-enterprise development approaches and partnerships between the Afghan Ministry of Agriculture and implementing partners, whose practices stretch beyond the conventional approaches of development assistance. This topic was selected as the result of extended interest in the agriculture and agro-enterprise development alliance, as well as personal experience in this field. A second reason for investigating Afghanistan's agriculture stagnant socioeconomic development is to find better ways and help the poor small-scale marginalized farmers within the rural areas. If enough attention and consideration is given to the agriculture sector of Afghanistan, there will be a chance to refine the economy and make Afghanistan self-supportive.

Scope of the Study

The following dissertation is based on qualitative research, a literature review and an analysis of the agro-enterprise development approach in the context of developing countries, in particular Afghanistan. An overview of existing literature in the field of agriculture and specifically agro-enterprise development is illustrated through a descriptive summary and discussion focusing on the role of NGOs in developing agro-enterprise and market-led initiatives. Furthermore, there is a review of the literature, which is aimed at shedding some light on the contribution of agriculture to economic development. Factors influencing the process were identified and analyzed based on primary and secondary data. There is also provided some widely accepted practices in agriculture and agro-enterprise and an overall understanding of agro-enterprise development and its relation to assisting small-scale farmers within the rural areas of the developing nations.

This thesis tries to answer the central research question of: **How do Agro enterprise initiatives by CRS (Catholic Relief Services) in western Afghanistan (Herat) help the local farmers to take their agricultural products to the market?** However in order to answer the central question of this research, a profile of the current situation, to identify the existing problems and their impact on the living conditions of the farmers (household) is carefully explained. Furthermore, methods CRS used to link local and marginalized small-scale farmers within the districts of Herat province to market plus introduction of agro-enterprise strategies that has effectively allowed them to utilize principles of economies of scale have been considered accordingly. As a perspective for local economic development. The overall objective of this research is to evaluate the role of agro-enterprise and its impact on the local economic development through market-led initiatives.

In view of the purpose of the research, identifying the main elements that have hindered the ability of local farmers in rural areas to access local and domestic markets were discovered and evaluated based on review of collected data and desk research. Furthermore, a representation of agro- enterprise components by CRS was critically examined in terms of addressing the problem of local farmers. In order to accomplish

research, a variety of most important and recent resources and literature were selected. A selection of related books, academic journals, reports and interviews were made in an attempt to find first-hand and updated data required for this topic. The primary data was collected through stakeholders review and individual interviews. The collected data was analyzed and findings were developed and incorporated in the topic. The discussion involved the local CRS staff and farmers (household) representatives who have been involved in agro-enterprise development project by CRS. Five staff members from CRS were interviewed via online contact and email.

Secondary data was analyzed and evaluated through desk research and literature review. The research that was conducted for this thesis includes both the conceptual theories of economic development in close relation to notions of agriculture and agro-enterprise and primary and secondary data analysis.

Organization of the Study

Literature reviews were conducted to define theories of economic development, more specifically the agriculture contribution. This was done in an effort to provide readers with a better understanding of the term agro-enterprise in the context of Afghanistan as an example of least developed countries. In line with subjects discussed, this thesis is structured in six chapters. Chapter one is the introductory part which gives the background of the research project including research problem, research objective, significance of the study, scope of the study, organization of the study. Moreover, it comprises the specific research question.

Chapter two gives the introductory literature review and theoretical findings on economic development, outlines the concept and key economic effects of agro-enterprise and its impact on local economic development. In addition, concepts such as agricultural market and collective marketing entrepreneurship are explained in line with concept of value addition, the transportation network as components of agro-enterprise approach. The last part of second chapter deals with the general background on NGOs and their role in providing public value, particularly in agriculture sector through their claimed effective mechanisms with a specific emphasis on post- conflict and underdeveloped states.

Chapter three explains the methodology that is used to conducting the research. It describes the study area, province selection, province description, data issues, type and source of data, selection of the sample size and the data collection procedure. The problem statement is well summarized under the title “getting the farmers to the market”. In particular, the main reasons for lack of access to local and domestic markets. Furthermore, some light is shed on the consequences that the lack of infrastructure, favorable inputs and lack of knowledge and market principles characteristics of Afghanistan have severe effects on the socioeconomic conditions of rural areas within Herat.

Chapter four presents some characteristics of the sample household in the study area. These include household size, total household income, source of income of the household, land holding. Some other socio-economic characteristics of households will be discussed in this section. Studying the characteristics of household income is very important for understanding the research findings. We start our description from study area.

In chapter five, the role of the NGOs in rebuilding Afghanistan’s agriculture and specifically CRS will be critically looked at in an attempt to find out and measure the impact and change that has been brought in the target area since its inception. Special attention is devoted to elaborate and analyze the various components of an agro-enterprise project implemented in the local districts of Herat. Given the severe lack of capacity in the area, the assistance provided by CRS is crucial for target farmers to strengthen their ability to get out of the poverty trap and to make a positive step towards improving their living standards. The activities of CRS will be analyzed critically in view of their efficiency and sufficiency.

Chapter six summarizes the study’s findings and the important conclusions about household income in Afghanistan. In view of this research, the agriculture market and marketing initiatives in relation to agro-enterprise is a significant factor that allows local farmers to participate in the market led agriculture and sell their products. However, the market plays a crucial role in the agro-enterprise.

Chapter 2 (Literature Review)

This chapter explores some general theoretical findings on economic development and in particular the contribution of agriculture to the economic development process. In addition, concepts of agro-enterprise and the impact on economic growth in the developing nations are elaborated on accordingly.

1.1 Income Generation Supplying Labor

2.1.1 Theory of Labor Supply

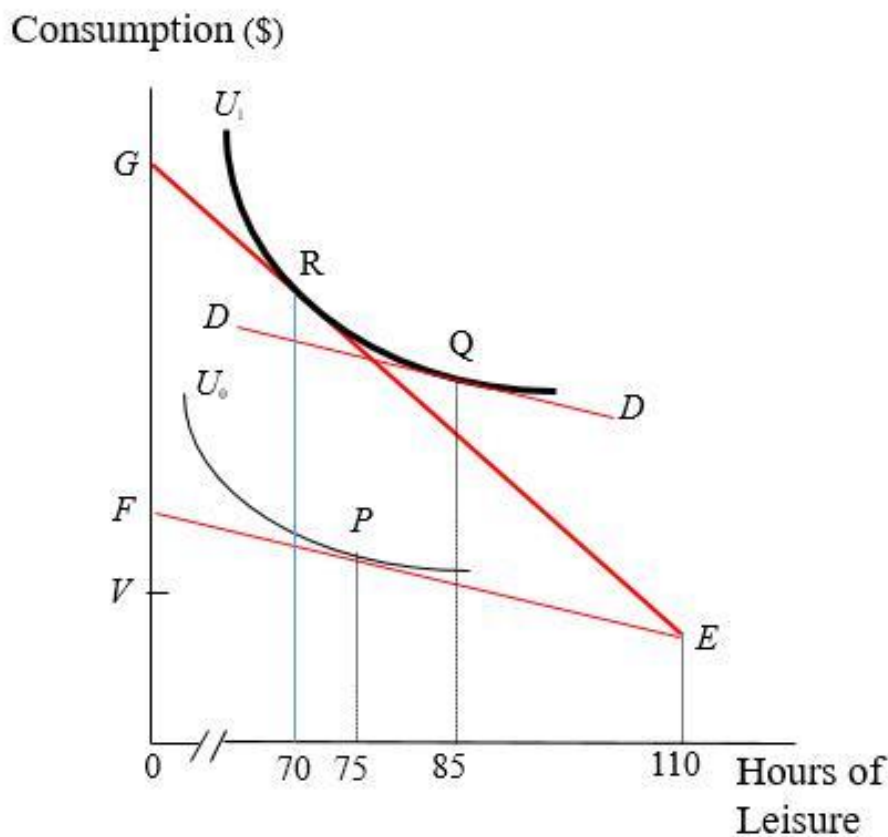
This section provides an overview of the labor supply theory to describe household labor supply in the market. But one important point that needs to be declared is that a household consists of one or more members living all together and take parts in all living expenses (Tabet, 2010, p. 18). Each person has to decide whether to work, if employed in the market, then to make a decision as to how many hours to work. Everywhere and every place, at any point in time, the two ward labor supply is given by adding the work choices made by each person in the population. Furthermore, total labor supply also depends on the productivity decision built by the earlier generation (Borjas, 2016, p. 21).

The classical labor supply theory is concentrated on the decision to work and the idea that people have to work to get income in order to satisfy their needs. Since most people living in the world are not independently wealthy, they have to work in order to receive income to buy desired goods and services. Income that individuals receive from working can increase their ability to acquire desired goods and services. In any economy, it is very clear that if people do not work, they have a lot of leisure time to consume. However, such individuals must do everything in their lives without goods and services. On the other hand, if individuals work ideally, they are able to have many goods and services. Besides the work time, every person needs leisure time as well (Borjas, 2016, p. 21). Under the neoclassical model of labor supply, there are two assumptions to be fulfilled:

- 1- Labor and leisure are the two possibilities to use the available time
- 2- Each person can choose the combination of both leisure and work to increase or maximize his/her utility (satisfaction).

People benefit more when they put an extra hour of leisure time to the market supply. As such, many people prefer substituting leisure time for work time. The main reason behind this is to increase overall income. Increase of the wage rate generates both substitution and income effect. When the wage rate rises in the market, the opportunity cost of leisure time goes up because the leisure time becomes more costly. Every person consumes less leisure time and very interested to work more. This means the substitution effect regarding the wage increase and the real income is constant. (Borjas, 2016, pp. 37-39).

Figure 2.1: Substitution Effect and Income Effect Regarding Wage Increases



Source: Adapted from Borja's, theory 2016 p 38

Figure 2.1 indicates the substitution effect of leisure time to work time through wage increases while the utility or satisfaction level is constant. People prefer consuming less leisure time than previously while the consumption of goods increases. Moreover, when wage rates increase, the price of leisure goes up and if people spend an hour in leisure time, then they have to lower higher labor income. Therefore, through the substitution effect, wage rises directly decrease demand for leisure time and increase work hours. These changes are displayed in figure 2.1 from point Q to point R and the horizontal line shows the decrease of leisure time from 85 hours to 70 hours. The substitution effect represents an increase in the work hours by 15 hours per week. In addition, the above theory states that when the income increases and wages are constant, then the leisure time increases. This means that a worker is convinced that working more leads to earning more and typically spends more time for working and less time on leisure.

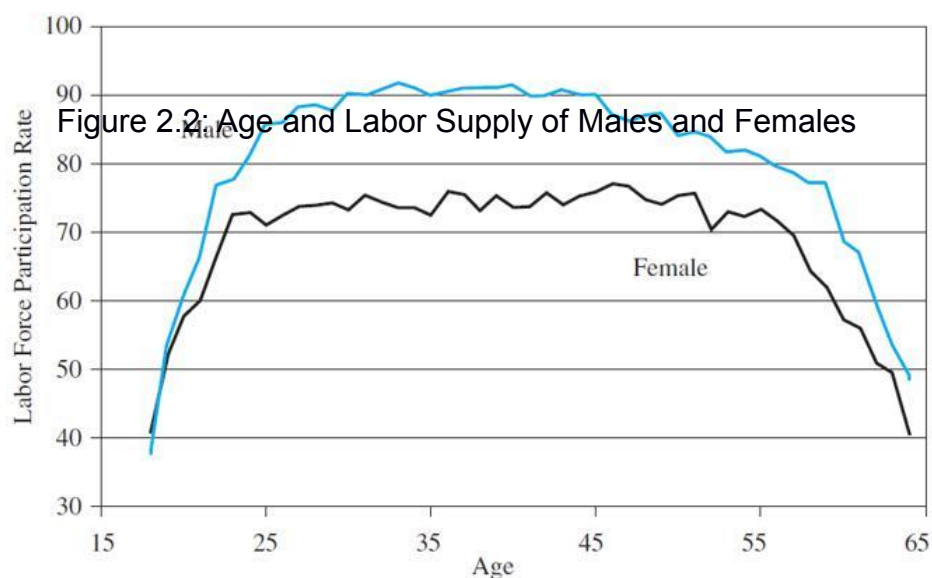
The second stage of Figure 2.1 represents the income effect with respect to wage increases. In this situation, the worker is interested in having more leisure time than work time because the wage rate is constant and increase in income directly affects the work hours. If the wage rate increases, the person immediately more labor in-come and can make a higher consumption bundle. Leisure and goods are assumed to be normal goods. Any changes occurred in income will be observed in both of them.

The above figure displays this change of income from point P to point Q (in-come increase) and the leisure time from 75 hours to 85 hours and reduction of work hours of 10 hours per week. (Borjas, 2016, pp. 37-39). The pattern of the worker's treatment in the labor supply theory generates many assumptions about the market. These assumptions include: availability of jobs and knowledge that workers have achieved. The theory assumes that the market under this analysis is perfect and also employment opportunities are available to all workers at a specified wage rate. Workers are free to work or not. It very much depends on the workers' priorities, whether they want to work as much as they want or have more leisure time. But the labor market is not so perfect for several reasons including: limited job options, limited work hours, restriction of employment, dismissal of workers, and limitation of wages. Furthermore, workers at any time have limited information about availability of jobs, the possibility of moving from their current position to another position or new jobs in the same section or different sections. Another problem for workers in employment procedure is the skills and other related characteristics. Thus,

if workers are interested in working, the jobs may not be available for them. All these problems affect the functioning of the labor market and directly affect the workers' decision to work. Notwithstanding these factors, the labor supply theory is a very important skeleton view of the labor market and decisions of workers to work (Mor-gan, 2008, p. 7). Labor supply is an important tool to analyze sources of household income in Afghanistan. Members of families who are employed or self-employed in the society generate income from the opportunities they obtain from the market. The availability of employment depends on the ability and skills of workers, which they can offer to the labor market. Since the labor supply theory is not able to ex-haust all the explanations of sources of household income, another theory has tried to shed more light on the issue of sources of household income and other characteristics of household families in the aforementioned research area. The section that follows below discusses the Mincer Model.

Relationship of Age and Labor Supply

We are interested to investigate if the age of people affects the decision to take part in the labor market. A person will work a few hours of time when the wage rate is low and spends most of the time in leisure time, and increases the working hours when the wage rate is high. However, the age earnings profiles show that wage rates are low for young workers and the wage rate will increase when the person gets various types of skill and knowledge. The wage rate declines for older workers because at this age the priority for leisure is higher than work time. The empirical evidence presented by (Borjas, 2016, p. 68) is shown in the following figure:



Source: U.S. Bureau of Labor Statistics, Annual Demographic Supplement of the Current Population Surveys, 2013 in Borja's 'Labor Economics', 2016, p. 68

Figure 2.3 shows that participation rate is high when the wage rate is high and it indicates the trends from ages 25 to 55 years old for both male and female members. On the other hand, the labor force participation declines after age 55. However, the trends represent that the wage rate declines much too steeply when the observed workers are nearing retirement age.

3.1. Literature Review

3.1.2. Agriculture Contribution to Economic Development

3.1.3. Theoretical Perspective

According to Todaro & Smith (2006), it is widely accepted that people live under different conditions throughout the world. Some have a relatively sustainable source of income with a business or permanent job. On the other hand, there are a massive number of the poor who constitute the majority of earth's population. They live in inadequate situations in the rural areas with very limited basic life needs. However, to avoid the disparity between these two groups of people and support the poor needy people, the idea of development and specifically economic development comes in (p. 3). In view of this concept, according to the theory of neoclassical economics, "Development means producing a better life. Development is fundamentally economic. Hence, the discipline of economics has to be integrally involved in the study of development" (Peet & Hartwick, 2009, p. 1). Therefore, the term economic development is vital in terms of the reduction or elimination of poverty, inequality, unemployment and agricultural development within the context of a growing economy. Similarly, development economics primarily focuses on economic, social, and institutional mechanisms needed to bring about rapid and large-scale improvements in standards of living for the poor residents of the developing nations. Therefore, economic development is a term which circulates to increase the level of living through raising income and productivity, (Todaro & Smith, 2006, p. 4). The concept of economic development has a unique place in the politics of the world today. Hence, the main idea behind economic development is to endorse the wellbeing of the poor in the developing nations and in particular the rural residents who suffer immensely. However, in order to help the poor in the rural and marginalized areas of the developing countries,

rural development through means of economic development by agriculture intervention and marketplace is considered as an important factor. The center of rural development is economic welfare and income generation, which could be attainable through agriculture mechanization among the poor in the developing nations. "Since World War II and the end of colonialism in Asia, there has been a substantial evolution in thought about the role of agriculture in economic development and the processes by which agriculture develops" (Martin, 1992, p. 331). This indicates that agriculture has its impact on the process of economic development within the developing nations. Nevertheless, the locations, behaviour and commitment of the involved countries play a role in the success of economic and rural development.

1.2. Economic Development can be explained from Different Theoretical Perspective

1.2.1. Rostow's Stages of Growth

Rostow's stage of growth is the most influential theoretical approach of studying economic development. It provides much logical and well-understood justification for the revival of economic development. "According to the Rostow doctrine, the transition from underdevelopment to development can be described in terms of a series of steps or stages through which all countries must proceed" (Todaro, et al. , 2006). This scholar believes that "It is possible to identify all societies in their economic dimensions as lying within one of five categories: the traditional society, the preconditions for take-off, the take-off, the drive to maturity and the age of high mass-consumption" (Todaro, et al. , 2006). According to this theory, the developed countries all moved from the stage of take off into self-sustaining growth and the least developed countries either are still in the traditional or precondition stage. However, developing countries should follow a certain set of rules for development to move towards take off and proceed into self-sufficient economic growth, (Todaro, et al., 2006, p. 104). Moreover, "Following Rostow (1960), the growth of agriculture in developing countries can be divided into three stages: traditional (static), transitional, and modern (dynamic). The contribution of agriculture to economic development increases as it develops from the static stage to the dynamic" (Martin, 1992), Therefore:

The value of this classification into stages is severely limited by the lack of characteristics unique to any one stage and clear-cut demarcations between stages. Nevertheless, it still delineates the changing characteristics of agriculture and the implications of these changes for agriculture's relationships with other sectors in the economy. It also emphasizes the changing objectives and instruments of agricultural development. These insights are essential for policymakers to understand not only the role of agriculture in economic development but also the processes by which agriculture develops. (Martin, 1992, p. 335)

Hence, this theory can be applied to the process of economic development and in most cases insists on the autonomous economic approach within specific geographic areas. In the view of this theory, we can interpret the importance of economic and rural development on the basis of agricultural improvement and inflows of agro-enterprises and market entrepreneurship.

1.3. Structural Change Theory

1.3.1. The Lewis Theory of Development

This theory discusses the importance of strategies through which least developed economies can have the opportunity to change their traditional type of economic structures from a deeply traditional type of subsistence agriculture into a modern and more industrialized one. It is declared that inflows of such reforms would strengthen the development of a manufacturing economy suitable for public service delivery. This theory was formulated by Nobel laureate. W Arthur Lewis in the mid-1950s and later developed and promoted by John Fei and Gustav Ranis. The Lewis two-sector model was mostly used and considered as a prominent theory of the development efforts in surplus-labor underdeveloped nations particularly in 1960s and 1970s. This theory is still broadly used. Lewis believed that least developed economy has two sectors: a traditional type of rural subsistence sector with a large populated and low productive surplus labor which could be transferred into a new sector. The transformation process entails minimum drawbacks on the output and level of productivity. This new sector could be called modern agriculture or briefly industrial sector. Based on this theory an increase in labor input has a direct

impact on the quantity produced. Therefore according to this theory a quantity shift in the capital and labor (factors of production) increases the agricultural output and production. However, in order to structurally transfer the economy from the traditional agriculture into a modern industrial sector, an equal level of economic performance is required in the both phases, (Todaro, et al., 2006, p. 108/111). In view of this theory, we can develop, transfer and expand the rural traditional agriculture system within the low income countries to shift into a new modern agriculture. This can be accomplished by considering inputs of agro-enterprise development components and market-led initiatives. "However, the centrepiece of the Lewis model (and essence of the classical approach) is the assumption that labor is available to the industrial sector in unlimited quantities at a fixed real wage, measured in agricultural goods" (Gardner & Raussier, 2001, p. 463). Indeed, these set of factors explain why agriculture can play quite an important role even in relatively late stages of development. Therefore, according to this theory there is an interrelated interaction between urbanization its growth and acceleration of the growth in the agricultural sector. However, agriculture plays a key role in fostering these structural changes which are part of the development process. Respectively technological breakthroughs in agriculture have enhanced its ability to foster these changes and such linkages between industry and agriculture triggered technological changes in agriculture, have significant implications for labor participation, employment, productivity and economic growth, (Martin, 1992, p. 342). Hence, in view of this theory a traditional type of subsistence agriculture has to be shifted into a new system triggered by industrial entrepreneurship in the economy in an effort to develop industry and modernize agriculture and agro-based initiatives.

1.4. The Neoclassical: Market Fundamentalism

1.4.1. Challenging the Statist Model: Free Markets Approaches

The Neoclassical theory focuses on three important economic factors related to all individual persons: possessing, purchasing and selling. According to this theory all economic goods and services belong to individuals and private entrepreneurs. However, individuals and private innovators try their best to consume goods and services in an attempt to meet their requirements and maximize their satisfaction to a remarkable rate. The primary focus of this theory is market. According to this theory "The market is

understood as a place where individuals come with their property to sell and/or to buy as they wish for the purpose of maximizing their satisfaction" (Wolff & Resnick, 1987). Neoclassical theory considers the market as the best possible institution in which suppliers as producers and demanders as buyers meet each other. Individuals are expected to act voluntarily. Based on this theory the concepts of efficiency and optimality are equally important. Scholars of this theory believe that it is the free market mechanisms which balances the economic interactions of individuals based on values of social justice. Neoclassical theories have a very important political consequence in our lives, as political leaders have been influenced by this theory to remove governmental and other interferences into the market economy, (Wolff & Resnick, 1987, p. 7/8). Respectively, after collapse of East Block and The Second World War following cold war, neoclassical theory with an immediate emphasis on capitalism and capitalistic economic concepts diminishing notions of feudalism and minimum state intervention have brought about significant changes in the modern world.

Similarly, the central argumentation of this theory is that underdevelopment is caused by ineffective pricing policies and inadequate resource allocation and too much state intervention particularly by regimes of the developing nations. According to scholars of this theory, it is state intervention in economic activity that slows the pace of economic growth, (Todaro, et al. 2006). Accordingly:

The neoliberals argue that by permitting competitive free markets to flourish, privatizing state-owned enterprises , promoting free trade and export expansion, welcoming investors from developed countries, and eliminating the plethora of government regulations and price distortions in factor, product, and financial markets both economic efficiency and economic growth will be stimulated. Contrary to the claims of the dependence theorists, the neoclassical counterrevolutionaries argue that the Third World is underdeveloped not because of the predatory activities of the First World and the international agencies, that it controls but rather because of the heavy hand of the state and the corruption, inefficiency, and lack of economic incentives that permeate the economies of the developing nations.(Todaro, et al. ,2006,p. 120).

Therefore, a reform in market economy is needed to promote the systems in the developing nations. However, the state plays a role in promotion and development of such a reform in the context of market economy. "The state becomes not only the cartographer of the social and economic conditions prevailing among a population within a territory but these factual outcomes become the source of government practices according to principles different from those emerging from the market" (Stathakis & Vaggi, 2006, p. 18). Likewise, the recent neoclassical variant is the market-friendly approach. According to this approach there are many limitations and deficiencies in market systems of least developed countries. Hence, based on this theory to avoid such market deficiencies and failures the state should intervene through concepts of market friendly approach in an effort to expand market activities. State intervention could entail developmental projects and strategies for physical and social infrastructure, agricultural mechanization, promotion of health care system and extensions in educational institutions. Moreover, by considering notions of economies of scale in production, these are all concepts from the newest schools of development theory used broadly, (Todaro, et al. , 2006, p. 121).

However, in view of this theory, the private sector and NGOs as part of the private sector, are the most critical and important institutions which could be given the opportunities to invest in different sectors and particularly in agriculture and rural development industries. In addition, inflows of investment is required more specifically to agro-enterprise projects in the developing nations to restructure the static process of economic growth and reorganize it into the new open market system which entails all necessary fundamentals and characteristic of economic growth. Additionally, Marggraf (1986), argues that,

In recent empirical studies on the agricultural production responses of individual economic units to changes in farm prices, there is a hypothesis which claims that, given subjective certainty and the ability to act as perfect competitors on all product and factor markets, agricultural households will maximize their welfare. (Marggraf, 1986).

This emphasizes on the focal theoretical model analysis of these findings that agriculture industry should be developed into a more productive source. Admittedly, appropriate resource input allocation, expansion of productivity for various crops, improvement of

consumers' satisfaction and profit maximization needs to be integrally incorporated into the agricultural development process, (Marggraf, 1986, p. 5). Therefore, it is inferred that achievement of such objectives requires commitment and investment from every individual stakeholder. In view of this concept, Martin's (1992) study found the following:

Agriculture also demands attention in economic development because of the peculiar nature of its production conditions. It is seasonal and heterogeneous in nature; subject to large agro-climatic, environmental, and economic risks; highly unorganized and nonunionized; and involves a large number of decision-makers. Limited awareness of knowledge about the transformation of agriculture, and the complexity of technology and technological change in it, has baffled many development economists and administrators and turned them away from agriculture as an engine of employment-oriented economic growth. Agriculture is the only sector of the economy that comes close to meeting the conditions of atomistic competition. Yet, agriculture has often been regarded as an impenetrable mystery, not yielding to the tools of economic analysis and incapable of being integrated with other sectors of the economy. Furthermore, the common view that the farmer is bounded by tradition, irrational, and unresponsive to economic stimuli has prevented agriculture from receiving adequate attention and resources from planners and policymakers. (Martin, 1992, p. 338).

On the contrary, there are counter-arguments which claim that agriculture has been the key developer engine of most industrialized economies and is the basis for economic uplift of many developed and high income nations. There are several reasons and arguments that support this claim. According to Kuznets (1961), agriculture is considered the fundamental ingredients of a market which provides products and contributes to the process of economic development. Similarly, Johnston and Mellor (1961), argue that agriculture ensures food security, expands exports, and promotes industrialization. Therefore, inflows of capital and financial incentives are an integral part of the development efforts towards agriculture development. These supporting ideas elaborate the contribution of agriculture to economic development. Respectively, according to the World Bank (1982), economic expansion and growth has been achievable in those countries of the world where agriculture has developed

dramatically. Therefore, since more than 90% poor inhabitants of the globe are located in rural areas and are engaged in agricultural activities. Thus, agricultural mechanization and development can be the only possible solution towards poverty alleviation and improvement of living standards. Therefore, based on these supporting ideas and theoretical interpretations, it is inferred that agriculture as one of the main factors of production (land) does play a significant role in laying out a suitable environment for economic growth, (Martin, 1992, p. 340). Furthermore, it expands the provision of assets for the industrial sectors to grow.

As a result, agriculture should be developed and considered as a key potential for economic development globally and particularly in developing nations. In view of our theoretical findings, agriculture has to be modernized and equipped with new technological advancements and open-market mechanisms in an attempt to achieve sustainable food security and rural welfare of the people in low-income countries. Application of such strategies would strengthen the process of agriculture mechanization, which has a direct impact on the leverage of productivity and income generation. Based on these analysis and theoretical interpretations, it is suitable to evaluate and focus on agro-enterprises and market-led initiatives interventions led by CRS to support local farmers in western Afghanistan. Additionally, evaluation of such projections would help us draw conclusions and build a cornerstone to genuinely assist small-scale farmers in terms of agricultural expansion objectives for higher terms of productivity, income generation by providing various livelihood opportunities through linkages to local and national markets in developing nations and specifically Afghanistan.

Chapter 3

Research Methodology

This chapter explains the methodology that is used to conducting the research. It describes the study area, province selection, province description, data issues, type and source of data, selection of the sample size and the data collection procedure. Different econometric models and tests are applied to data sets that are needed for the analysis. These include econometric techniques and statistical modeling, tests, the Gini-Coefficient, the Lorenz Curve, the quintile method and multiple regression analysis models. Averages and some percentages are also calculated where these tools are needed for the purpose of analysis.

3.1 Sampling, Data Collection and Analysis

Primary as well as secondary data were used to fulfill the research objective. A large number of households were selected as base of primary data that was collected from the study area containing, Herat. A well-defined structured questionnaire was used as a tool for the primary data collection, that involved a sample survey which was conducted in the study location during the period (April-June 2025). The survey involved the interviewing of 1,236 household leaders in the study area. The researcher also had informal discussions with the Ministry of Agriculture, the Central Statistical Office and some government and nongovernmental organizations to collect the primary data. The secondary data on the size of families, sources of income exist in every province in the study area and the other characteristics of families were collected from the central statistical office of Afghanistan (including, total population living in Afghanistan, level of population in urban and rural areas, the number of the female population, the number of the male population in the total area of Afghanistan and for every province separately and total numbers of households living in each province). The number of employed people in farm activities, amount of productions and livestock activities related data was collected from the Ministry of Agriculture and some nongovernmental organizations. The periodical reports on household income that are published by the CSO, Ministries and other organizations such as NGO, USAID, WFP and NARV are other sources that are used in the form of secondary data.

3.1.1 Sampling Techniques

In this research, the household was taken as a unit of its analysis and the whole data set was collected at the household level from this head. The primary data collection involved a sample survey, which was conducted in the study locations during the period April, and August 2025. The survey involved the interviewing of 1236 heads of household in the study locations including Kabul, Herat, Kandahar, Nangarhar and Balkh. Sample households were selected using the random sampling method but this method not exactly applied because the individual households are not registered in the CSO in Afghanistan and the CSO only registered the total number of households in the research areas. To this, propose, first, I collected the total number of households from the website of the CSO and then contacted municipalities for more information regarding number of households, but the municipalities from each provinces only gave the name of areas. After that, the area was selected randomly and then the interviewees were conducted with the heads of households. Interviews were contacted with a standardized questionnaire. The questionnaire was divided into two sections. The first section dealt with the demographics of households, the structure of household labor in terms of age, gender, members of households, size of house-holds, education, experience and other qualifications of the household leaders as well as information on decisions also included in the evolution of the households' structure. The second section was the largest and dealt with data on sources of house-hold income as follows farming, livestock, savings, employment,remittances,social-transfers,NGO-income, self-employment, narcotics wealth and the problems faced were included in this section. These lists of households were obtained for the purposes of reliability and representation of the sample size. It was not possible to collect all the information for some studies from the total population especially in Afghanistan. For this reason, a sample was selected for the target of this research to determine a convenient sample size. Different approaches are used including tables already published, the comparison of some study sample sizes and some formulas for small population sizes. These approaches were not take into account the large population size and no similar studies exist to use as a model. For this reason, the following formula published by Cochran (Cochran, 1977, p. 75) is used to determine the required sample size for this study.

According to the Central Statistics Office annual reports about the data set, which is published in the form of a statistical yearbook in (CSO,2014-2015), there were 1321000

households in the five largest provinces in the study area. Clashing the constant value of $Z = 1.96$ to the variability $P = 0.7$, the accuracy $Q = 0.3$ and the error margin $= 0.0255$ by putting these values in the equation (3.1) we find the sample size to be 1236. The sources of income are very heterogeneous and many people living in rural areas work directly or indirectly in the agricultural sector. So the value of P and Q respectively taken is 70% and 30% this means is that 70% of people living in households carryout farm activities and 30% have other sources. Many numbers of sampling techniques for selection of the households exist but we used simple random sampling for collection of primary data in each province for this study; the households were selected from total households in each of the five provinces of the site selection with convenient sample. So we have a stratified sam-ple where the structures are given by the provinces. The result is in the following table:

Table 3.1: Distribution of sample households in the selected provinces in 2025

Provinces	Total No of households	Sample households
Kabul	256,000	436
Herat	236,000	200
Kandahar	153,000	200
Nangahar	190,000	200
Balkh	166,000	200
Total	1,321,000	1,236

Source: Own Field Research Data

3.1.2 Data Analysis

To analyze the data different econometric and statistical techniques are used to achieve this set of objectives. The purpose of this section is to explain the methods to calculate the Mincer earning regression model regarding sources of household income, the production function to find out the determinants of total household income and in each province separately. The Gini-coefficient is used to measure income inequality; the Lorenz curve, an

analysis of variance, the Theil Index and the Quintile method are also used for measuring this. Multiple regression model is used for determination of source of household income in every province. Multiple regression models are used to establish the relationship between household income and outside factors affects this. Structural break tests, the T- test, the F- test, the Chi-square test are used for each model in estimation procedure. These entire models are explained in the following subsection.

3.2 Operationalization of Key Concepts

3.2.1 Household Income

Household income is the total income that a household receives from farm and non-farm activities. These include employment, self-employment, NGO income, social transfers, savings and remittances, in the form of farm activities including farming income, livestock income and narcotic income. For calculating the monthly household income (in Afghani) an algebraic method for interpretation is used, these are in the following equation:

Where

Y	Total household income
X ₁	Employment income
X ₂	Social transfer income
X ₃	Farming income
X ₄	Narcotics income
X ₅	Livestock income
X ₆	NGO income
X ₇	Self-employment income
X ₈	Remittance income
X ₉	Saving income
X ₁₀	Other source of income

To determine the total household income, all the calculations about income are made at the household level, and are reported in Afghan currency. In this calculation income from both farm and non-farm activities are included. All sources of money received by the household or by individual members of households at monthly or more reported intervals, but excludes

the costs as well as some irregular income. The net income from activities is obtained by subtracting the cash expenses incurred in the production from the gross income. Income from non-farm activities includes income from employment, income from NGO, income from self-employment, income from social-transfers and income from remittances.

Employment Income

Data from employment income is collected at the field level. To collect data for employment income, the households were asked about any salaries, wages that they get monthly, fees, any rewards or other profits or individual benefits of any kind received by employee, if it is money or valuta and anything else that is provided by a pension of the employee (retirement income). The total income from the sample household is measured monthly.

Self-Employment Income

This is the situation in which an individual works for himself or herself instead of working for an employer who pays a salary or wage. A self-employed individual earns his income through conducting profitable operations from trade or business that they operate directly. The total income from a sample household is measured monthly.

Social-Transfer

Social transfer is a benefit that is provided by the public body to an individual or household, which is determined to be in need of social assistance. Social transfer includes a wide range of programmes such as humanitarian relief to regular families and predictable instruments such as social pensions. The total income from sample households is measured monthly.

NGO Income

This source of income is what individual or household members receive from NGOs or nongovernmental organization in the form of wages and salaries. This is a big part of household income in Afghanistan and many Afghan people employed by these organizations have received higher salaries than those people who are employed by the government. The total income from sample household is measured monthly.

Savings Income

This source of income is based on the interest rate that individuals or household members receive from deposit accounts. The total income from sample households is measured monthly.

Remittances Income

Remittance is source of household income in Afghanistan. This involves money transferred by Afghan people who work in foreign countries to family members or households in the homeland. The Afghan immigrant level is very high in the world. Most of the household have more than one member outside of the country, and they send some part of their money to household members who live inside the country. The total income from sample household is measured monthly. In this research, income from farm activities or the agricultural sector is divided into three categories and includes income from farm, income from narcotics and income from livestock.

Farm Income

This source of household income includes income that households receive from fruits, vegetables, farm machinery, forests and crops. More than 50% of Afghan families are working in this sector and the production process is still in the traditional way. The total income from sample household is measured monthly.

Narcotics Income

This type of income is not legal in Afghanistan, but many people still cultivate this product and sell it on the market. Traffickers receive higher income from those activities. Most of the money from these activities is earned by traffickers and only a small part is received by farmers who cultivate this product. The total income from sample household is measured monthly.

Livestock Income

This includes income by the sale of livestock products like milk, butter and ghee from cows and goats. For small animals, it refers to income from the sales of animals as well as their products. The total income from sample households is measured monthly.

3.3 The Mincer Model

The connection between the income of individuals and aggregate human capital is an important subject of research in the present time. Mincer (1958-1974) developed a relationship and used the main ingredients of aggregate human capital as determinants of the income earned by individuals in the labor market. Mincer proposed a model of natural log of income as a function of linear term for schooling and a linear and quadratic term for experience. The natural log of income was used and the ordinary least square (OLS) method was applied to consider the relationships between different explanatory variables and household income (dependent variable). The following general model of Mincer regarding income has been applied to determinants for the monthly income of households.

S	The educational level of members
X1	The experience level of members
X12	Quadratic experiences of member
Dk	Different independent variables (k=1,2,3....,n)

Where

YH	Total monthly household income measured in US \$
AHH	Age of the head of the household
CHD	Children (number of children in the household)
HM	Household members (number of persons living in the household)
EDU	Number of educated members that are living in the household including (elementary school, high-school, bachelor degree, master degree and PhD degrees)

EXP	Experience of members (increases of incomes of member after getting jobs from the first year, second year and third year in US \$)
EXP2	Squared experience of members
GEN	Male/Female members living in the household
SAV	Savings (The income that household received from deposit accounts in US \$)
RM	Remittances (the income of members currently living outside the province and financially supporting their households in US \$)
MAD	Married (number of married people living in the household)

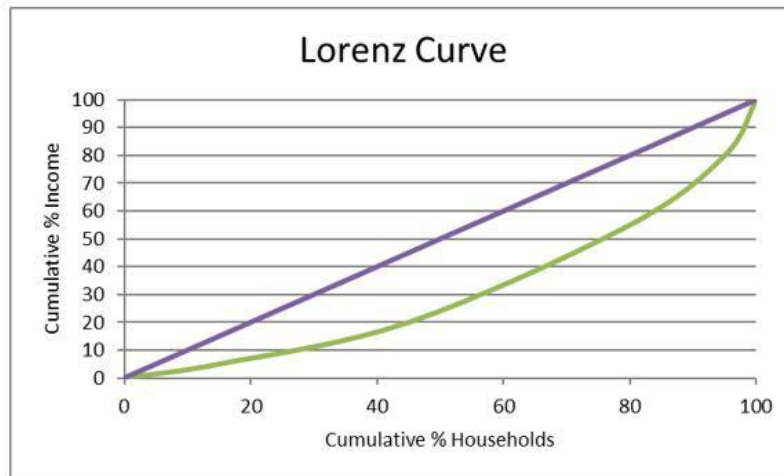
CHAPTER 3. RESEARCH METHODOLOGY

DK	Dummy variables (Kabul, Herat, Kandahar, Balkh and Narcotics)
LA	Dummy variable(LA = 1 if part of the income is due to language, and LA= 0 otherwise)

3.5.1 The Lorenz Curve as a Measure of Income Inequality

The Lorenz curve is one of the most significant measures of income inequality. The income inequality between the households in the study area can be indicated by the Lorenz curve diagram and displays the cumulative income distribution. The line of the Lorenz curve shows the inequality of income at the households' level, when the deviation of the ideal line from the equality line is highly displayed. This means high inequality of income distribution exists in the household level, but on the other hand when it does not show any deviation from the equality line this means perfect equal income distribution between households. The percentage of households is plotted on the X axis and the percentage of income on the Y axis. It was developed by Max O. Lorenz in 1905 to show wealth inequality. The figure below is an example of Lorenz curve.

Figure 3.1: An example of the Lorenz Curve



The straight line shows the perfect equality and the curved line below shows the Lorenz curve.

3.5.4 An Analysis of Variance as a Measure of Income In-equality

An analysis of variance is one of the most important measures of income inequality. When the data sets divided into subgroups, the analysis of variance is supported by the disintegration of within and between elements. The within elements inequality of income distribution obtains the inequality because of the variation of income within each group, and the between elements inequality achieves inequality because of the variation of income among various groups (Bellu & Liberati, 2006, pp. 2-3). In this method, all sources of a household's income were divided in urban and rural areas, then the inequality of income was separately analyzed in each groups. With this method, we used the formula that is derived by (Bellu & Liberati, 2006).

3.5.5 The Theil Index as a Measurement of Income Inequality

The Theil Index is one of the best alternatives to the Gini index to measure income inequality. In contrast to the Gini index, all members of the class are completely analyzed in the form of decomposition between and within subgroups without residual term (Bellu & Liberati, 2006, p4). For this method, all sources of household income are divided in two groups: urban and rural source of income. In terms of

within decomposition, the weighted average of the inequality index of two groups is derived with weights of the total income share of households. In the second term, we used the subgroup mean of household income in urban and rural areas instead of actual means. Then we replaced this mean in each group with the average level, this made the decomposition between elements. The sum of these two elements shows the values of inequality in two subgroups. The Theil Index is calculated by the following equation that is already used by (Bellu & Liberati. 2006).

Chapter 4

Descriptive Analysis of Income (Contents and Results)

This chapter presents some characteristics of the sample household in the study area. These include household size, total household income, source of income of the household, land holding. Some other socio-economic characteristics of households will be discussed in this section. Studying the characteristics of household income is very important for understanding the research findings. We start our description from study area.

4.1 The Study Area

The research area is one of the largest provinces of Afghanistan called Herat, which is located in western part of the country. Afghanistan is located in central Asia. The area of Afghanistan is 652864 km² and the country consists of mountainous and is land locked. The total population of Afghanistan in the year (CSO,2014-2015) was estimated to be around 28 million, including 20.1 million living in rural area and 6.5 million living in urban areas and the remaining part of the population are nomads.(CSO, 2013-2014).



The Afghan population is very young, about 42% are under the age of 15 years and only 3.5% above 65 years old. The Afghan population belong to various ethnic groups such as the Pashtuns, Tajiks, Hazaras and Uzbeks and the other minor ethnic groups are Noristani, Baluchis, Turkmen etc. The official languages of the country are Pashtu and Dari (CSO, 2013).

Sources of household income and the availability of income are more variable. This means that more income sources are available to households than the rest of places in the potential research area. The areas are more secure and more accessible to field research than the other parts of the country. Additionally, the CSO supported the researcher to make contact with households and provided some other facilities to me during the field work in these areas because these areas have much security and they are able to support the scholars in these areas. Moreover, I was able to interview households, government and nongovernmental organizations to complete the data required.

4.2 Household Size of the Sample Households

Household size provides valuable information regarding quantitative and qualitative attributes of households for work, members, sources of income and income generation from each member in the household. Data presented in Table 4.3 shows the descriptive statistics of the household sizes of families in the study area of sample households. The data show, that the average household size in the study area was 8.05, ranging from 2-29 members with a standard deviation of 4.08. The average household size in the study area was found to be 8.05 and a little higher than the average found of by the CSO (CSO,2014-2015). The male member's average was 2.56 with ranging 0-14 and a standard deviation 1.752. While, the average of the female members in the households was 2.82 ranging from 0-16 with a standard deviation 1.68. The children average was 2.58 ranging 2-17 and the standard deviation was 2.239. The number of dependents in the family averaged 7.44 with a minimum three and a maximum fifteen and the standard deviation was 2.03. The highest value of coefficient of variance was in number of children per household. This showed that the variance of number of children per household is very high.

Number of persons per household

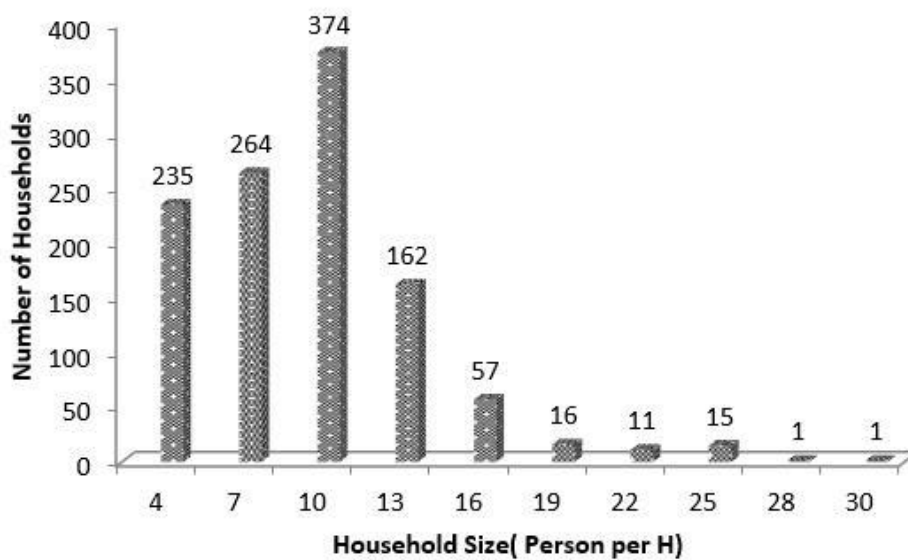
Figure 4.2

	Average	Minimum	Maximum	S-D	C-V in %
Males	2.56	0	14	1.752	68.43
Females	2.82	0	16	1.688	59.85
Children	2.58	2	17	2.239	86.87
No - of Dependents	7.44	3	15	2.03	27.28
Total	8.05	2	29	4.08	50.68

Source: Own Field Research Data

For a better analysis of households in the study area, we explain the frequency distribution of a number of households of different sizes that is presented in Figure 4.2. The figure shows that the greater number of households had 7-10 members, only a small number of the sample households had three or fewer members.

Figure 4.2: Frequency distribution of household size in the study area in 2025



4.3 Age of Household Heads in the Research Area

Age plays an important role in increasing the household economy. It means that a higher number of young people in the family results in a higher labor force and in a high level of income. Table 4.2 describes the age groups and the descriptive statistics analysis of household heads in the study area. The majority of the household heads in these areas belong to the group of people in their middle age. It shows that the younger population in Afghanistan is higher than in the neighboring countries (Shayan,2016,p.340).

4.4 Income Sources of Sample Households

The households in the research area work in different activities to generate income. In terms of classifications, all sources of household income were grouped as farm income, employment, social transfers, livestock income, NGO income, remittances, self-employment and narcotics. It was observed that greater number of households had their monthly income from employment. But where this source of income was not adequate for the household upkeep, they engaged in another occupation to complement their income. In addition to the main classifications, they also adopted ancillary occupations. Data in Table 4.2 disclose that 16.75% of the households gaining in employee income source pursued 16.63% of the sample households that had social transfer as a main source of income. It was also shown that 15.92% of the households had income from farm activities and 14.89% of the households had self-employment activities followed by 12.86%, 11.79%, 8.23% and 2.89 % of the households having respectively NGO income, remittance income, livestock income. An estimated number of only 2.89% of the households had income from narcotics.

4.5 Income and Activities

In the study area, employed and farming income were the most important income activities. These activities contributed about 22% and 21% of total household's income respectively. Income from non-governmental organizations was the third most important source of income activity, it contributes 18% of total household income. Remittance, self-employment, and livestock were the other income activities in the research area, these activities contributed respectively 12%,10% and 9% of total household income. Moreover, participation of households in Narcotics activities so much

lower and only 2 % of households reported income from cultivation and selling of this product. In the case of social-transfer just 3% of total households had their income from this activity.

In Afghanistan, most of the population lives in the rural area. Only 20% of the population is living in the urban area (Maletta, 2006, pp.1-2)). Households in urban areas make their income from activities including employment, self-employment, non-governmental organizations, social-transfers and remittances. Data reveal that 34.70% of household income was from employed activity followed by 26.59% of household income in the urban areas was from non-governmental organizations. It was also indicated by 18.28% and 16.35% of households that their income was respectively from remittances and self-employment. However, the lowest 4.06% of a household's income was from social-transfers.

Majority of the population in Afghanistan lives in rural areas, and form about 80% of the total population (Maletta, 2006, p1,2). Households in rural areas earn their income from activities including farming, livestock and narcotics. However, a small part of households receives remittances and social transfers too. Data in Table 4.3. show that 65.82% of household income was from farming occupations, 27.76% from livestock activities and only 6.34% of the household income was from narcotics acti-ity. However, the important point is that landowners collect most of the benefits of the products and only a small part accrues to the farmers. Moreover, traffickers in national and international markets collected the maximum income from narcotics. Nevertheless, households in the research area not give the exact level of income that they had from narcotics because the product is illegal in Afghanistan and they fear to give information regarding this source of income. This product was more serious in the research area and in general created more income for the households especially in Kandahar, Nangarhar and Kabul.

Table 4.3: Sources of income of the sample households in rural areas in 2025

Occupation	Average and percentage of income in US\$					
	KAB	HET	KAN	NAN	BAL	Total
Farming income	87.006 (66.54)	126.45 (66.08)	102.55 (70.45)	96 (61.52)	97.60 (65.18)	509.60 (65.82)
Livestock income	34.53 (26.40)	51.60 (26.96)	37 (25.42)	50.50 (32.36)	41.125 (27.55)	214.75 (27.76)
Narcotics income	9.22 (7.05)	13.30 (6.95)	6 (4.12)	9.54 (6.11)	11 (7.34)	49.06 (6.34)
Total	130.75 (16.90)	191.35 (16.90)	145.55 (18.81)	156.04 (20.17)	149.72 (19.35)	773.41 (100.00)

Source: Own Field Research Data

4.6 Agro-enterprise and its role in income generation (LDC)

Agro-Enterprise deals with small-scale producers and farmers within a territory, and refers to the process of improving agricultural mechanization and standards. It includes entire input processes for farmers such as; seed and fertilizer distribution, availability of cultivatable land, irrigation systems, financial assets, storage, transportation and marketing of products. In other words, it encompasses the whole supply chain cycle from input and process to output and outcome, which

leads to the concept of the added value chain in agriculture. Improving the agricultural systems and production services is also a core part of the agro-enterprise development process. According to a World Bank Report, "Agro-enterprise development covers the entire gamut of activities concerning supply of inputs, production, processing, transporting, and marketing of agricultural and related produce. It cuts across various sectors and encompasses the institutions and businesses serving the agriculture, forestry, and fisheries sectors" (AED, n.d). However, the significant target of agro-enterprise efforts is to improve the productivity of farmers and ensure their conditions of livelihood are improved to a maximum rate.

Furthermore, the incomes of farm producers and small-scale farmers have often been restrained by low productivity and lack of access to domestic markets. This is due to existence of less entrepreneurial behavior among them. Limited resources have made most farmers and farm producers vulnerable to many natural disasters such as drought and pests. Reorganization of the agriculture sector in many developing nations involves a transformation process from a traditional type of agriculture to a modern system including all ingredients of agro-enterprise approach. However, it is deemed necessary to consider the agro-enterprise process within agriculture and agribusiness processes of many developing countries as a potential to provide local producers and farmers with an opportunity to improve their agricultural abilities and increase creativity. Concepts such as the adding value to harvested products should be considered in an attempt to improve their conditions of livelihood and ensure agricultural sustainability is maintained. Agro-enterprise could be the only initiative to motivate and push small scale- producers towards better terms of trade and productivity. Governments and related sectorial agencies of many developing countries can no longer achieve better productivity in the agriculture industry without considering new creativity and initiatives as part of their agenda.

Recently two African countries Uganda and Malawi have brought some changes in their agricultural behavior helping the small-scale farmers to orient themselves with new agro-based technologies and agribusiness interventions. The "One Village One Product" approach to community agro-enterprise development in Malawi that aims at building the capacity of small-

scale farmers to effectively link themselves to markets and to develop competitive agro-enterprise.

The Plan for Modernization of Agriculture (PMA) approach in Uganda also focuses on building the skills and knowledge of community farmers, and local service providers to engage effectively in markets. These approaches further propose a market orientation mechanism that helps small-scale farmers to effectively connect their products to potential markets. Additionally, they can find the opportunity to produce what they actually can sell rather than making efforts to sell what they have already produced. These approaches are based on CIAT's rural agro-enterprise development strategy described by Best in (2002) (Njuki, Kaaria, Sanginga, Kaganzi & Magombo n.d). There has been four to five key steps taken into consideration in this approach. Each step explains a tentative agro-enterprise process through which small-scale farmers are organized and supported to take fundamental agro-enterprise various steps and components into consideration and apply them in their communities. Below the following steps are illustrated with the help of a graph accordingly:



(Source: Njuki et al. , n.d)

The first step in this approach is to select, build and maintain effectual partnership mechanisms with different parties and stakeholders such as NGOs, government departments, agricultural related sections, and the private sector. Integrated working partners are trying to select pilot sites and communities, providing them learning opportunities and community developmental planning policies. The second step is quite interactive that facilitate and offer farmers collective visionary opportunities to create and realize the potential change for future conditions. This process also helps farmers to identify, assess and evaluate a tentative list of enterprise and market opportunities for their products and community income generation. The third step is market research and development through which farmers are working in groups as entrepreneurs to strengthen established clusters and create new associations and integrated agro- enterprises. These enterprises include both men and women who work to represent their communities. Furthermore, these integrated designed agro-enterprise clusters are trained by market specialists and facilitators in participatory market research enterprise options, as well as in cluster dynamics. The fourth step is market and enterprise visits through which important visits to big markets, hotels, wholesale and retail locations, food processing centers, supermarkets and restaurants are organized for farmers. These excursion visits are done in downtowns and major selling points to allow farmers get new experiences and gather information on variety crops, their method of cultivation, quality desired, standard packing and price fluctuation. This process is done in order to assess and identify quantity demanded in the market in an attempt to produce accordingly. Likewise, such visits provide opportunities to connect farmers to bulk clients and improve their relationship with various stakeholders, (Njuki et al. , n.d). Such interventions over time have brought about movements and change in the agriculture industry of Uganda and Malawi. However, these initiatives have stimulated the national governments in both countries to improve agricultural policies and particularly develop market orient strategies for the poor.

Similarly, "The Rural Agro enterprise Development aims to contribute to sustainable rural development through the generation of tools, methods, information and organizational principles for identifying and establishing viable agroenterprise options that diversify and add value to the productions of small holder agriculture in fragile ecosystems" (CIAT, 1999, p. 13). However, the agro-enterprise development program is designed to initiate techniques, tools, and post-harvest

methods along with the support from all stakeholders that assist the implementation of a successful project. This allows farmers to utilize the resources sufficiently and provide them with opportunities to integrate themselves to local and national markets, (CIAT, 1999, p. 1). The other key aim of the agro-enterprise approach is to increase farmers' income through high productivity and value chain supply of products with low cost means and high marketability in an effort to channel the bigger portion of the market income to local producers and the smaller chunk to traders and bulk clients. One of the other important objectives of the agro-enterprise approach is to let women be involved in agricultural activities and keep gender equality balanced. Women in most rural areas of developing countries are given less opportunities to participate in market-led initiatives. For instance "In parts of Africa, husband and wife cooperate in the joint production of some crops, while other crops or parts of the production process e.g., marketing are entirely the responsibility of one sex" (Gardner & Rauser, 2001 p. 405). However, women are mostly working on farms and therefore, their contribution to overall household livelihood is considered significantly crucial but market activities are usually represented by men. Many women are involved in post harvest production activities indirectly and therefore, it is necessary to focus on their integration and participation in market-led agriculture, which, is quite essential and helpful in terms of more income generation to their overall household revenue.

4.7 Factors affecting the Household Income in Herat Province

Herat province is located in the western part of Afghanistan. Households benefited from various sources of income in their activities at the household level. The data set was collected during field research from 200 households. Ordinary Least Square (OLS) regression is run on this data in order to investigate factors that influence household income in the research area. Table 7.3 indicates the factors affecting household income in Herat province. Further, the table below shows that thirteen variables were used in the equation to find the relationships between the explanatory variables and dependent variables (i.e. a log of monthly income of a household). These variables explained 10 % of overall variation of the dependent variable (R-squared 0.10). In this model only four variables out of thirteen variables have a significant effect on family income in this province. The model shows the significance with the value of

F - Statistic (1.60) at only 10% level of significance. The coefficients in the model show that the variables have a direct positive impact on household income. For more details, see Table 7.3

Table 7.3: Empirical Results of Factors affecting Household Income in Herat

Dependent Variables: LOGMONTHLYINCOME in US \$ in 2015 White
Heteroscedasticity-Consistent Standard Errors and Covariance

Variable	Coefficient	Std.Error
C	2.659800***	0.047956
AGEOFHH	-0.001077	0.001118
CHILDREN	-0.069048*	0.036522
EXPERIENCE	-0.000360	0.000752
LANGUAGE	0.000126	0.000178
SAVING	0.000365*	0.000187
MALE	-0.054511	0.035347
HOUSEHOLDSIZE	0.076546***	0.036405
FEMALE	-0.073779**	0.039223
REMITTANCE	0.000110	7.99E-05
EDUCATION	-0.009529	0.006891
MARRIED	-0.004683	0.026455
NARCOTICS	0.000163	0.000105
EXPERIENCE ²	4.70E-06	4.03E-06
R-squared	0.10968	

Adjusted R-squared 0.038033

F-statistic 1.605214*

N=200

Source: Own Field Research Data

Number of children has a negative relationship with monthly income of households in the research area. Increasing one child will decrease the income level of a family. The reasons could be a large number of children in the family, lack of education, not enough support by the government and international donors to recover a partial cost for these households. Savings of households has a positive correlation with income. The result shows that increasing savings will increase the level of investment and this directly increases household income. Family members or household size has a positive correlation with income and the result is significant at a 5 % level. This means that the increasing household size will mean a rise in income too. In comparison with the results for Kabul province, experience, languages, males, drugs are not significant in Herat. However, the variable household-size has an insignificant value in Kabul while for Herat it is important. Moreover, the value for female members in Herat is significant.

4.8 Agro-Enterprise and Economic Development

4.8 How Agro-Enterprise Can Bring A Change?

According to (Lundy, Ostertag, Gottret, Best & Ferris, n.d), the majority of the world poor population lives in remote and rural areas of the least developed nations. They are confronted with serious challenges, which hinder their quality of work and agricultural productivity. Lack of proper infrastructure, inadequate production methods, lack of financial sources, market price fluctuation, poor postharvest techniques, and their insufficient ability towards developmental policy interventions are among the most pressing obstacles. Therefore, along with the rapid expansion of technology and atomic era, major global players are changing their trends enormously. However, developing nations and their communities feel the need

to develop their abilities and design innovations in order to use their existing labor force, in hand resources and skills to take the utmost benefit of new production opportunities. Undoubtedly, "In many cases, current trends will continue to marginalize increasing numbers of small-scale rural producers with particularly negative effects on those that are least organized and distant from markets" (Lundy, et al. , n.d). This will remain as a critique due to the fact that most rural farmers in particular small-scale marginalized ones in many developing countries including Afghanistan are living in remote areas and are facing tremendous challenges in their daily agro-based performances. (p. 2) Furthermore, many of these poor farmers generally depend on low quality, marginal land with poor access to water, domestic and international markets and agro-based machineries. They are equipped with very limited resources to meet their immediate food security needs.

In order to ensure food security needs are sustained and to manage price volatility within the market, many governments in least developed states bear the responsibility to intervene in the marketplace by imposing supportive economic policies and mechanisms. These regulative market reforms include market floor or ceiling prices. "A price floor is a legal minimum on the price at which a good can be sold and a price ceiling is a legal maximum on the price at which a good can be sold "(Mankiw, 2000, p.814). In addition, some quotas are used for specific commodities in an effort to better match demand with supply within the market. In spite of the fact that the private sector and individual entrepreneurs are the main players within the concept of open market economy and that the government role is reduced. However, there is still a need for the government intervention in many developing nations to control the market. Therefore, it is important to bear in mind that such reforms have brought about many changes for small-scale farmers in the marketplace. They are no longer considered only individual local actors but real competitors and entrepreneurs. Hence, farmers and local producers should adapt themselves to the new business environment competing against many market players and their interventions, (Lundy, Gottret, Cifuentes, Ostertag, Best & Ferris, n.d. , p. 8/9). Indeed their active contribution over time will lead to an agricultural industry that will benefit virtually all farmers and farm growers in both developed and developing countries of the world.

However, it is highly accepted that expansion of agro-enterprise and agro-industrialization techniques among farmers lead to social and economic welfare within the rural areas. Similarly, expansion of agro-based techniques and the value addition prospects would strengthen the process of economic development contributing to local economic growth in developing countries. In addition, local and international agribusiness companies play a key role in production, process, and marketing of variety crops. Therefore, it is inferred that "promoting agro-industrial development is a policy goal for many governments in both developing and developed countries" (Johnson, Suarez & Lundy, 2006). Indeed there is an essential need for social and economic contribution that would definitely lead to income generation and integration of individuals and groups of farmers who are located in remote and farther rural areas of the developing countries, (Johnson, Suarez & Lundy, 2006, p. 1/2). For this reason, the agro-enterprise package contains such reforms and tools that would over the time, not only lead to an enabling environment for such farmers but also to improvements in the agriculture economy. Much more work is required in developing nations to enable the poor distant farmers to take part in market-led entrepreneurial initiatives and benefit from the agro-enterprise development opportunities, in order to help themselves generate more income and earn more from their agricultural activities within the remote rural areas of their owned countries. However, agro-enterprise is a sophisticated process that provides small-scale farmers many equipment and input-based resources such as: value added chain technological skills, cold chain storage, transportation facilities, market-led entrepreneurship behavior and similar other incentives that would be out of reach of most small-scale producers of the rural areas in the developing countries. Furthermore, agro-enterprise initiatives would provide the famers with opportunities to invest and enter into businesses. Indeed, investment and operating in such activities are perceived highly risky and will entail tradeoffs.

To adapt agro-enterprise initiatives, rural communities need various agricultural-based strategies to expand and diversify their agricultural mixed on/ off-income streamlines and increasingly developmental plans, (Lundy, et al. n.d. , p. 2). However, in an agro-enterprise development approach the initial objective for local and rural agro development through leverage of productivity is to first satisfy the demands and meet the needs of small-scale farmers themselves

as direct beneficiaries and their families as indirect ones. Secondly it should enable them to raise and develop productivity of their agricultural-based activities. Therefore, the primary step would be to assess and evaluate effective demand for certain domestic markets. Moreover, market demand for agricultural productions is often volatile; however, certain effective and efficient marketing measures, principles, regulations and appropriate assessment for more market channels should be in place committing the long term demand for agro-products. For example, in East Asia the inauguration of farmer cooperatives and organizations for selling and distribution of agricultural productions has played a crucial role and changed traditional into productive agriculture which has increased demand chain for agricultural expansionary purposes among small-scale farmers. In addition, Long term support for agricultural mechanization of the African regions which is considered quite important for food security purposes are in place. Such strategies certainly promote private investment and inflows of major projections for improving irrigation and agricultural mechanization. Indeed these types of approaches help improve the agriculture industry and reduce food insecurity in African countries that are mostly vulnerable to risks and natural disasters, (UNIDO, 1997, p. 5). However, market research and assessment in developing countries should identify key interventions with high potential for income generations, which could be targeted under agro-enterprise development programs focusing on those areas that are most appropriate to the need of each geographic territory. Therefore, in order to have a successful agro-business achievement in rural areas, there is a vital need for agro- enterprise involvement with its effectual mechanisms and components that are looking for high value and profitable crops which could be marketed and sold in high prices. Such pro-poor policies like agro-enterprise development strategies in the agricultural sector of most developing nations would be an appropriate way towards poverty reduction and enabling the small-scale rural farmers to take initiatives, innovations and new creativity in the agriculture sector with greater aims at generating more income by joining the nearby markets to guarantee a sustainable agriculture industry effective for economic growth.

4.9 Economic Effects of Agro-Enterprise Approach

Agro-enterprise is defined in an earlier part of the chapter "as a business activity that is implemented on a small-scale and by resource poor farmers" (Lundy, 2005). However, this approach emphasizes on developing certain skills in an attempt to move to concepts of economics of scale (a branch of microeconomics emphasizing on reductions in unit cost) and encourage service providers who do not have expertise in rural business development to consider the agro- enterprise approach as a cumulative strategy, attempting to replicate its ideas on a broader business scale within the poor marginalized parts of the developing world, (Lundy, Gottret, Best, & Ferris, 2005 , p. 6). Therefore, the agro-enterprise approach primarily tries to provide life basic needs to the poor through values of economic development. In view of this, All people have certain basic needs, without which life would be impossible. These life sustaining basic human needs include, food, shelter, health and protection. A basic function of all economic activity, therefore, is to provide as many people as possible with the means of overcoming the helplessness and misery arising from a lack of food, shelter, health and protection. To this extent, we may claim economic development is a necessary condition for the improvement in the quality of life that is development. Without the sustained and continuous economic progress at the individuals as well as the social level, the realization of the human potential would not be possible. (Todaro & Smith, 2006, p. 21).

However, in order to raise income per head, eradicate poverty, create job opportunities, reduce income inequality and promote livelihood means through agricultural productivity, there needs to be done certain necessary activities. These are all key targets that are considered as their pre-conditions for rural economic development that has to be applied within remote areas of poor underdeveloped nations, (Todaro, et al. , 2006, p. 21). As a result, most populations' livelihood in the rural areas of developing countries depends heavily on agriculture productivity. Therefore, agriculture mechanization and development efforts which could be pursued through agro-enterprise development strategies is the key factor towards rural livelihood improvement.

4.10 What is the Agriculture Market?

Agricultural markets are an integral part of the agribusiness process; however, understanding the various dimensions of the market is the key to developing agricultural based- economies. The value chain concept of economic standard requires efficient means to a sustainable agriculture approach. Reaching domestic and international markets is considered as one of the big opportunities for local farmers and agribusiness entrepreneurs. In many transforming and agricultural based- economies like Afghanistan, agriculture markets remain the most important factor of helping the poor farmers to increase their agricultural based income. Although, "Loosely speaking, marketing is perceived to be the art of selling products. However, it is a complex process, starting from market-driven production to consumption, covering transportation, storage, logistics, packaging, distribution" (Singh & Pandey, 2005, p. 1). With the rapid expansion of technological development, trade liberalization and foreign investment the demand for high-value processed agricultural products is increasingly rising which is generating income for farmers and local producers.

However, these developments are enlarging market opportunities, which is significant for agricultural and nonfarm growth. In addition, it has positive effects on local employment and rural income. Changes in demand, market timely deliveries and grading products are all posing special challenges for unskilled local farmers. Still in many agricultural-based and transforming economies, mechanization of agriculture remains a noble challenge for the poor rural farmers. For instance, the markets' performance in Herat province of Afghanistan are often hindered by poor infrastructure, inadequate support services and weak institutions, pushing up transaction costs and price volatility, (CRS/GDA, 2007, p. 6). Well-functioning markets can reduce transaction costs and improve food security of poor producers as suppliers. However, despite the fact that the marketing system in Afghanistan itself is in need of repairment, linking farmers more closely to these markets provide them with opportunities and guide their production to meet changing consumers' preferences for quantity, quality, variety and safety of their products in the long run. Improving the market condition is one of the core responsibilities of the government and NGOs, involved in the sector; however, "Investment in agro-business and agro-processing

will make a positive impact on the economic development of Afghanistan and will give Afghans pride in producing and purchasing local Afghans products" (Market Prospect and Afghanistan, n.d). Therefore, a strong institutional system and good governance along with services that provide updated information for managing risks and enforcing contracts among farmers as producers and buyers as demanders is required.

Chapter 5

NGOs and Agro-Enterprises in Western Afghanistan (Discussion)

In order to elaborate and refer to the problem statement making efforts to alleviate poverty and improve livelihood, income generation remains a significant challenge for many households and communities in rural areas of the country. This section discusses concretely the role of NGOs and their contribution to the development of agriculture sector of Afghanistan, this chapter will explain the Catholic Relief Services (CRS) initiatives in regard to rural economic development through rebuilding and modernizing agriculture in Herat province. Agro-enterprise and agribusiness is the primary focus of this chapter, and attempts to explore the cooperation of NGOs in alleviating poverty and fostering local economic development in rural areas of Afghanistan.

5.1 NGOs' Role in Rebuilding Afghanistan's Agriculture

5.1 An Insight into Catholic Relief Services (CRS)

As an NGO "Catholic Relief Services (CRS), is an official relief and development agency of the U.S. In the public mind, CRS is best known as an American humanitarian agency that responds to the world's major emergencies and disasters" (Hackett, Piraino & Rivera, 2006). CRS has supported and supplied humanitarian and development assistance to many developing countries in South Asia, Africa, and the Middle East. For example, it has assisted with the food crisis in Africa and the tsunamis in Indonesia and India. Helping crisis is an integral part of CRS's work. "The Agency also helps communities develop the resources they need to sustain themselves. CRS overseas assistance efforts around the world involve programming in agriculture, HIV/AIDS, community health, education, emergency response, peace building and microfinance" (Hackett et al. , 2006). CRS was founded in 1943 by the U.S Catholic Church to assist the poor and marginalized people around the world. Gradually, CRS promoted its programs and expanded its projects in socio-economic development and effective ways to help the poor. For instance, "In its agricultural programs, CRS has adopted agro-economic development and environmental

stewardship strategies that seek to mitigate this ecological damage and devise systems that allow communities to reap benefits from revitalized environmental systems" (Hackett et al. ,2006). This is considered significantly crucial since environmental issues have become very important to CRS particularly with the current rapid expansion of debate on issues of global warming and environmental degradation. In addition:

CRS understands its mission as a relief and development agency to include the promotion of global solidarity and social justice. Although this evolution was for CRS a positive step, it was largely secular in nature and driven by increased funding from the government. Through this process, CRS came to broaden its understanding of its mission from primarily one of charity and emergency response to one of development, self-help and sustainability. The Agency came to view its work through a "development lens," in which high value was placed not only on addressing the manifestations of poverty through relief activities, but also on eliminating the immediate causes of poverty through long-term development programs.(Hackett et al. , 2006).

Moreover, "severe economic pressure often lead people in poor communities overseas to despoil their local environments in order to scratch out a minimum level of subsistence-over farming soil, deforesting trees for firewood, polluting their local waterways" (Hackett et al. , 2006, p. 7). Following its core mission CRS has spread its programs to many developing countries in South and Central Asia such as Afghanistan, Pakistan and India to undertake development and emergency initiatives to support marginalized and low-income families in rural areas. Therefore, one of the countries CRS chose to work in was Afghanistan where it could run agriculture and agro-enterprise projects mainly in west and central areas.

Therefore, without any doubt Afghanistan has been one of the most challenging areas for CRS to implement its projects in helping the poor and vulnerable farmers. CRS has been present in Afghanistan since 2001 and has been working with communities in the western and central provinces to improve rural livelihoods through a number of projects. Some of these include agriculture and agro-enterprise development, women empowerment, rural infrastructure, water supply and hygiene promotion, community based education and watershed development. CRS proposed an agro-enterprise development project for western Afghanistan to combine resources from non-governmental agencies, donors, private parties, and the United States Agency for International Development (USAID) to stimulate development, expand rural income and employment opportunities and provide viable alternative livelihood options to the rural poor through the development of agricultural enterprises and markets' opportunities for selecting high value and profitable crops.

The CRS's agro-enterprise development program in western Afghanistan has made significant progress towards enabling rural and peri-urban households to expand and improve sustainable agriculture-based livelihood through market-oriented agricultural development. Furthermore, the project has directed strong foundations for the development of agro-enterprise opportunities by supporting, organizing and fitting operators in several market chains. Additionally, it has continued the expansion activities for over 30 crops cultivation techniques, (CRS/ADA, 2008, p. 4). Through its agro-enterprise development project, CRS has focused mainly on six districts in Herat province. These are Injil, Gozara, Obe, Pashtun Zarghon, Karukh and Zinda jan, through which CRS has channeled its agro-enterprise project in an attempt to help rural farmers improve their agricultural techniques and join domestic markets for livelihood options. Combining its experience in agriculture development and rural agro- enterprise CRS provides agricultural services to poor farmers and small livestock owners in districts of western Afghanistan. CRS has made agreements with the Afghan government related sector, the

Ministry of Agriculture Irrigation and Livestock (MAIL) and all partners, particularly in the private sector. The goal is to help farmers in terms of adding value chain, as well as local entrepreneurs who could be helpful in supporting farmers in terms of collective marketing entrepreneurship.

5.1 Methods CRS used within the Agro-Enterprise to help farmers get to market

5.2 Post production handling and marketing improvement

According to CRS/ADA (2007) "to develop market research, CRS has conducted livelihood surveys within Herat districts. CRS identified key market interventions with high potential for income generation, which could be targeted under formation of small-scale farmers' market association" (p. 4). However, based on CRS/ADA progress report (2008) to consider such market mechanisms and increase farmers' income CRS has primarily focused on identification of crops with high marketability and provided the farmers with quality seeds. Building on territorial approach, CRS has developed innovative and flexible agro-enterprise models. These models were refined over time as a result of CRS pro-learning orientation. One of the significant ingredients of such models was collective marketing action through which farmers were supported and provided logistical assets to help them reduce transaction costs by collectively selling their products to bulk clients in the nearby markets. In addition, farmers' groups were introduced to high value crops which, were sold at high prices in the local markets. These crops included improved variety seeds of tomatoes, strawberries, carrots, garlic, saffron and onions.

In addition, CRS was able to invest a large amount of efforts into its seed distribution phase. Agronomists were able to help small-scale farmers identify varieties of quality seed available in the market that would be good mother seeds for starting seed multiplication. Samples and seedlings from all varieties were distributed to farmers after going through a rigorous quality check at the MAIL experimental station. Afterwards, approved quality

seeds, with high germination rate were disseminated to farmers who could then try to reproduce them. CRS tried to ensure the large majority of seeds distributed are open pollinated. CRS and MAIL research analysts were able to identify crops with high value productivity for example, “Person Tomato”¹ variety with a very high potential, in terms of multiplication. This variety of tomato has been preferred both by farmers and tomato paste producers’ companies, (CRS/ADA, 2007, p. 8/10). However, to apply agro-enterprise development principles, CRS has focused primarily on Herat’s six main districts. These districts included numerous villages with a large number of small-scale farmers who have not yet attended any types of technical training to improve crop cultivation methods. They were mostly dependent on traditional subsistence agriculture with very limited access to market opportunities.

5.3 Basic Market-led agriculture Training

To improve the agriculture business and productivity of small-scale farmers and link them with local markets to sell products in good prices, reduce individual costs, avoid products’ spoilage and eventually encourage farmers to cultivate high value and profitable crops, CRS designed its strategy by proposing two primary interventions to farmers in selected areas : (1) "Increasing on-farm and off farm income of resource-poor rural households in Herat’s districts by linking them to local markets and (2) Increasing the local capacity of rural farmers in market-led agriculture" (CRS/ADA, 2008). Therefore, working through and complementing the efforts CRS used a methodology based on market assessments that combined first activities with immediate and clear benefits and second longer-term cluster formation, capacity building and collective actions to stimulate the development of agribusiness opportunities. CRS established a joint training program along with the MAIL extension department in Herat province to train farmers on different methods of crop cultivation and to improve their knowledge of market-led agriculture by building their skills through continuous support, monitoring and training at different levels within the clustered groups. Since the inception of the project, CRS assigned its marketing specialists and technical trainers’ teams to mobilize farmers within their villages and conduct collective

marketing capacity building sessions prior to the harvesting time. These training sessions were held at the community level and through the farmers' associations. Moreover, to orient farmers with better market principles, they were trained on topics such as; market assessment, supply and demand intervals, post-handling principles, harvesting techniques, standard picking, packing, sorting, grading and labeling methods, (CRS,ADA, 2008, p. 4/14). It is undeniable that conducting such training workshops supported farmers to unify themselves and form clusters within their villages to act independently in the nearby markets.

According to Mr. Whaid Habib, CRS marketing specialist; these trainings included both theoretical and practical sessions. Manuals/training materials were developed by CRS based on the experience of MAIL experts and their partners. Trainings were held at village centers with each cluster on the field. CRS market specialists along with MAIL kept monitoring farmers during the operation to ensure correct implementation of the improved post-harvest practices. Mr. Habib further explained that, a selection of 50 farmers from each village were brought under each single cluster to be trained on variety crops, for example, farmers were trained on improved tomato harvesting methods including appropriate picking time based on crop maturation and expected transportation time. Therefore, considering this method contains two benefits, first, using efficient packing techniques reduces spoilage of fruits and vegetables to a maximum rate. Second buyers and customers in the market become encouraged and motivated to buy better packed fruits that enables farmers to earn more income. As a tentative approach CRS has provided the farmers with equipment such as crates, weighting scales and plastics for standard sorting, packaging and labeling of their products. It is worth noting that, application of such marketing principles and standards added value to products, increased their sale in the markets and led to the reduction of transaction costs, (Wahid Habib, Personal Communication, March 24th, 2011). Nevertheless, it is inferred that, provision of high quality seeds has a direct impact on the level of productivity. Seeds with relatively good quality increases both quantity and quality of products to be sold in the markets at

higher prices. In addition, standard collection, packing, sorting, grading and classification of harvested products motivates bulk buyers (as value chain producers) and individuals and families as consumers to purchase well packed goods rather than low and nonstandard quality ones.

5.4 Establishment of small scale farmers' Association through Clusters

5.4 Establishment of farmers' Association within each District

The second step within CRS's agro-enterprise approach has been the formation of official farmers' associations within rural areas. Previously in the problem analysis, it was mentioned that farmers usually bear individual costs bringing their sacks of products to the market. However, to address this issue, CRS has put effective systems in place to establish farmers' clusters and strengthen association formation in rural areas. Therefore, CRS initiated to work with two different types of clusters. "First, with area based clusters that contained a relatively large number of members. Second, farmers of small groups. There are 12 clusters currently operating under CRS supervision in Herat. These established clusters started meeting regularly" (CRS/USAID, 2007). Meetings were found quite helpful and profitable, CRS expects to expand the number of clusters in the forthcoming projection period. In addition, farmers' clusters are structured and all include presidents, vice presidents, a cashier, and a board committee. The board committee, along with the operation employees regularly organize meetings, that include pre-operation planning for production and marketing, test operation review and activity review meetings. Likewise, the board committee administers group operations and reviews results. CRS believes in the capacity building of board committee members and operation employees and in strengthening cluster structures within villages. Therefore, according to CRS it is a necessary way to ensure sustainability of operations and full transfer of ownership of the program to the farmers, (CRS/USAID, 2007). "CRS hasn't been fully successful in developing expertise tremendously and therefore, intends to sharpen its strategy to optimize the impact of the project especially regarding formation, strengthening, and capacity building of existing and new farmers clusters within Herat"

(CRS/USAID, 2007, p. 16). For example, Kurt village operation involves an already registered farmers' association. Similarly, KTPC (Karukh Tomato Paste Factory, owned by the Karukh district farmers) coordinates the sales of tomatoes for the cluster. "CRS has built the capacity of these entities' employees to reinforce the sustainability of the operation and progressively disengage them from the daily management work" (CRS/USAID, 2007, p. 17). Progress has been made but there is still a long way ahead. Thus, CRS continues forming associations, especially in seed production, collective marketing and greenhouse production. A sustainable interest is essential from the part of the farmers. These two operations, (Kurt & Karukh) covering at term over 900 farmers, are going to be potential future successful associations, (CRS,USAID, 2007). However, the agro-enterprise model that CRS has already developed in forming farmers' associations puts an emphasis in motivating individual small-scale and marginalized farmers within Herat districts to build buyers trust on an informal basis. This initiative provides farmers with the initial step towards market assessment. Furthermore, it helps farmers' representatives along with their cluster members to identify and mobilize potential buyers in domestic markets. CRS found out that:

Since establishment of farmers' associations in Herat districts, many farmers seem to be quite independent and productive in terms of selling their harvested products. Currently farmers can themselves initiate open discussions with bulk buyers and design delivery plans. This is usually done two months prior to harvesting time. Negotiations with buyers through farmers' clusters involve the development of structured delivery plans and price bargaining. Farmers expect to invest more efforts to ensure better terms of trade, high cluster productivity and marketing plans are sustained. Through farmers' clusters, cluster boards are under control of small- scale farmers associations that have already been established in the village centers. Farmers seize the opportunities to openly discuss market problems inside cluster boards on a weekly basis. MAIL is also systematically associated to the collective marketing operations. In addition, farmers' market association boards democratically vote for their candidates as representatives and when necessary official registration is processed through MAIL.(CRS/USAID, 2007).

Therefore, farmers associations and clusters can facilitate better training procedures and collective marketing action. It also solidifies farmers efforts to reorganize their collective work, which has a positive influence in the long run. This initiative further helps farmers to act independently within the markets and represent their position as a collective unified forum in the region.

5.5 Expand Market opportunities and provide the farmers Market materials

Through its agro-enterprise development prospect, "using participative methods, CRS and farmers' associations designed the most appropriate system for harvesting, collecting, transporting and delivering to bulk clients. Several sets of equipment and supplies were procured and delivered to farmers as in-kind² contributions to support such operations" (CRS/ADA, 2008).

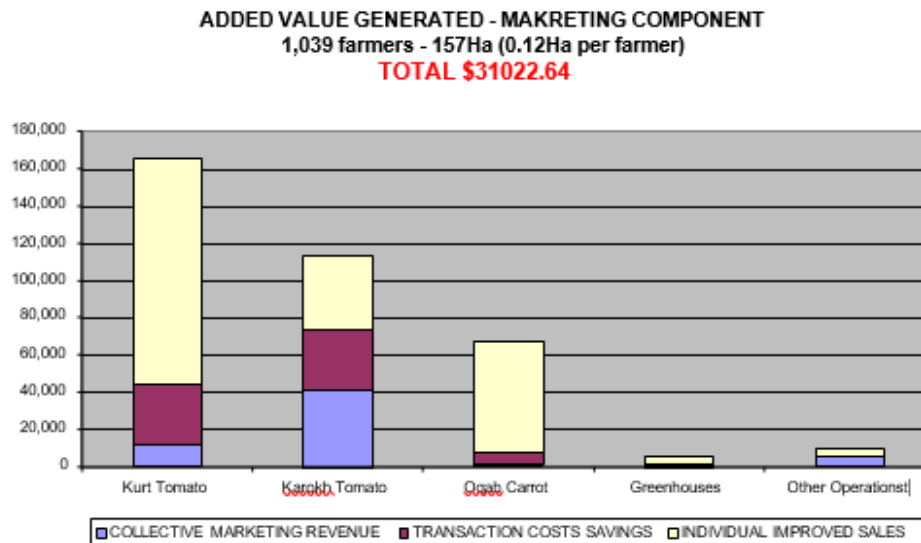
However, in order to equip farmers with better market materials CRS distributed them standard crates, weighting scales, wheelbarrows, improved packaging sheets and labels. In addition, to expand more market opportunities CRS, along with MAIL and Herat municipality, supported the opening of several selling booths in Herat city and district centers. Farmer representatives collect products in the morning and transport them to the selling points. A selected farmer leader then sells the products from the running shop and generates a steady income from selling on behalf of other farmers, (CRS,ADA, 2008, p. 5/14). Similarly, based on this analysis from the market condition in western Afghanistan, it is mostly possible to expand such market opportunities in other nearby provinces and cities which have close borders with Herat. For example, there could be other selling centers and markets to extend selling booths in Farah, Ghor, and Badghis, nearby provinces with a relatively same ecological condition in the region. Transportation networks and road conditions on the way to two of these cities are relatively suitable with low shipping costs.

5.6 Reduction of Transaction Costs and Added Value Generation

Reduction of spoilage and transaction costs is considered one of the key factors to increase farmers' income by selling more products in the market. Hence, "CRS has measured farmers' wastage by transporting products using traditional containers such as wooden crates, cloth bags, baskets, donkeys and other methods. Wastage during the sales operation and distance between collection centers and the delivery location is taken into consideration, including transactional costs" (CRS/USAID, 2007). It is worth noting that such costs are not similar and they are always different for each cluster due to its distance from the market centers. CRS has tried to show farmers the best method of crop collection and delivery. For example, considering Karukh district cluster, tomatoes are well packed and sorted and then recorded at the collection center by the accountant. Therefore, farmers usually do not face wastages during collection and harvesting, (CRS/USAID, 2007). As a result, "0% spoilage is considered for all operations of the similar delivery method. In some other districts, greenhouse collective marketing operations have shown 10% wastage due to the long, distances and inadequate transportation systems and poor road conditions" (CRS/USAID, 2007). In order to reduce such costs CRS has helped farmers associations to make favorable agreements and fulfill formal contracts with buyers per year. For this purpose, farmers' representatives sign formal agreements with bulk clients at inception of the operation. This identifies the quantity demanded in the markets and allows farmers to produce accordingly.

For instance, CRS has established links with some value adding chain companies in Herat, through which the two tomato producing clusters of Karukh and Kurt were introduced. Golchin tomato paste factory has bought the large amount of products from these two operations. "Total revenue generated (\$31,022.64) of sales for the two tomato clusters in Kurt 100.761mt and Karukh 28.5mt (metric ton) at an average of \$0.24/kg" (CRS/USAID, 2007). In order to find profit we have to minus total transaction costs from total revenue. CRS has found other similar companies at the regional and local levels. CRS intends to find additional prospective buyers and access higher prices. Similarly,

"200 farmers from Oqab village collaborated and delivered 1,600kg of carrots to a potato chips factory also producing carrot jams" (CRS/USAID, 2007, p. 15). The following table indicates the mentioned marketing operations and added value generation under CRS agro-enterprise development project:



(Source: (CRS/USAID, 2007)

Moreover, making formal contracts and agreements with bulk buyers and producing factories has stabilized the price per kg. in the market and increased farmers income per kg. In addition, farmers' cooperatives capacity were built with market-led principles. Thus, farmers were provided with an opportunity to apply the knowledge and deliver their products on the field to reduce transportation costs. On the other hand, consideration of standard collective marketing principles has also reduced the level of spoilage to a remarkable grade. The operation highlighted maximum profit for the farmers, (CRS/USAID, 2007). As explained in the above two operations, collective marketing action usually reduces transaction costs and allows individual farmers to generate more revenue.

On the contrary, it entails some drawbacks to some individual farmers with limited land access or those who are not part of the collective marketing process.

5.7 Supply of Transportation Facilities

Rural transportation development is key to rural agriculture development. It is important to consider agricultural growth in relation to transportation costs. Indeed low transportation costs help farmers to take their goods to markets cheaply. It is important to bear in mind that agriculture and non-agriculture sectors are intertwined in terms of production and expenditure. Production refers to the process of agricultural input, process, output and outcome. Additionally, investment and consumption are the two ingredients of expenditure, (Roetter, et al. , 2007). Therefore, "Access to urban markets is important for selling agricultural surpluses and for determining the scope for local manufacturing and services. High transportation costs prevent sales of all but very high-value crops, thus, limiting the scope for agricultural activities" (Roetter, et al. , 2007). Moreover, it is an obvious fact that development of a standard transportation system is linked to rural economic growth. In order to have adequate roads infrastructure development is necessary. "When infrastructure investments reduce transport costs to urban areas, local goods and services face competition from urban goods and services. This results in a leakage of positive spill-over effects from agriculture (that may well benefit from the reduced transportation costs) to urban areas" (Roetter, et al. , 2007). Undoubtedly, supply of well functioning transportation is essential to link local farmers to markets, especially when production increases and demand suffices within the markets. Therefore:

Access to urban markets and links between the agricultural and non-agricultural sectors determine the different stages of non-farm employment in rural areas. In the traditional stage, the rural area faces high transportation costs to urban areas. Limited agricultural productivity limits non-farm

employment opportunities. As agriculture develops, it promotes local non-farm employment through local production and expenditure links (locally linked stage). Additional income in agriculture will increase the demand for non-agricultural goods for consumption and investment. Similarly, an increase in non-agricultural income will increase the demand for agricultural goods for consumption and investment. The production and expenditure links imply that growth (or lack of growth) from one sector can spill over to another sector.(Roetter, et al. , 2007, p. 80).

However, in light of these facts, CRS through its agro-enterprise development project intervention, tried to mediate transportation facilities by linking rural small-scale farmers to nearby markets. In addition to the locally traditional built transport system within the districts, CRS has initiated the joint transportation system through which individual farmers transport their products collaboratively with particularly low transaction costs. One of the possibilities to attain such missions is the provision of rental truck contracts with a number of public and private transportation companies, (CRS, 2007). Therefore, CRS has established links between cheap viable transportation companies and the local farmers by which cooperative of farmers can jointly take their goods to the markets.

According to Mr. Ghulam Nabi Haqmal, CRS marketing project field officer, all farmers' clusters are connected to local transport networks within Herat through which almost 90% of farmers collectively take their goods to the nearby markets. Farmers' representatives from each cluster accompany transportation of their related products until they reach to the market selling centers. Official contracts are signed between farmers' associations and local transport providers. MAIL has also intervened in the process to support clusters in securing sales for larger quantities.

CRS promotes provision of adequate transportation as one of its guiding principles. Transportation is essential to the success of the operation. CRS has developed a certain expertise in the formation of clusters of farmers. Starting with initial community mobilization phase, CRS federated farmers around a common activity and supported them in building a sustainable and equitably profitable operation. He said that, spoilage was a major concern for farmers with around 7% loss prior to the project. Nevertheless, farmers applied the techniques taught during trainings sessions. With a better transportation system, adequate incentives and market chain standards, spoilage has been reduced remarkably (Ghulam Nabi Haqmal, Personal Communication April 2nd, 2011).

5.7 Women Enterprise and agriculture intervention

Through several years of experience, CRS has developed innovative interventions which have increased household incomes, built skills and provided women with a social and business forum. In order to allow women to participate in rural economic and social development, CRS has provided various incentives to support and ensure their active participation in their community development. CRS has primarily established two main types of social and economic forums. Cottage-level women-run fruit, vegetable and food processing centers (FPCs) sponsored by CRS as well as Self-Help-Groups (SHGs) in villages have proven to be successful in meeting these objectives. CRS initiated to capitalize on this experience and expanded SHG and women-run food processing centers (FPCs) by continuing to support women intervention towards women-led agro-enterprise initiatives and marketing, (CRS/USAID, 2008). Through SHGs women are split into groups and trained on topics such as carpet weaving, food processing, wool spinning, tailoring, oilseed, and marketing principles. "The majority of the SHG have been engaged in handicraft activities using agricultural inputs. Agro-Enterprises (AE) and SHGs formation have grown since 2005 in Herat; indeed, many women's groups have been formed for agro-business or food-processing activities" (CRS/USAID, 2008). It is important to note that SHGs are most sustainable when members are linked with agro-enterprise opportunities consisting of capacity building in agro-enterprise entrepreneurship. However, CRS has helped women to integrate them to their communities and take initiatives to maximize their intervention and contribution to the household livelihood approach. SHGs members independently select the type of activity they want to specialize in based on the members' existing skills, available materials and market opportunities. For instance, group members identifying the potential in tailoring during the rapid market assessment will test pilot this activity as a potential strategic business opportunity. Likewise, group members suitable for tailoring or tomato paste processing will be involved in such activities as desired, (CRS/USAID, 2008, p. 3). Prior to the project women faced tremendous difficulties in building their social and economic skills. They could scarcely

attend social gatherings, rarely took part in community mobilization and such activities when necessary were represented by men.

Through the agro-enterprise development approach several men, however, understood the benefits of women's livelihood opportunities. However, there are still many women who are not allowed to participate in such social and economic activities. Many females are faced with tremendous difficulties in building their social skills. They can scarcely attend social gatherings and rarely take part in community social initiatives. Traditional and religious views of men against women have constrained many young girls not to attend such gatherings in their village and hence, gender inequality is part of the problem. This must be taken into account in the forthcoming projects. It is however, important to remember that, the government plays a major role in keeping the genders balanced and providing publications to raise men awareness on women's rights and their share in the economic aspect of the family within their societies.

5.7 Kitchen Garden Management

In addition to the previously mentioned initiatives, CRS female agronomists' team has also trained women farmers in kitchen garden management. "The purpose of this initiative has been to boost food security and nutrition among farmers' families through the promotion of vegetable gardens and small livestock production, improvement of production techniques and raising awareness about food utilization and nutrition issues" (CRS, 2008). This activity plays a key role in the food security and improvement of family nutrition. During the past years, many farmers were selling most of their products, leaving out little for their own consumption. As a result, fewer crops were cultivated in gardens due to an overemphasis on selling in the market. CRS agronomists have discovered that kitchen gardens are much more than just the production of vegetables. Therefore, CRS improved kitchen garden models including different crops for better food security purposes and encouraged women farmers to raise small poultry and livestock to generate income. This

led to women farmers directly benefiting from kitchen garden activities. They received continuous support and were distributed different seeds such as (tomato, eggplant, okra, cabbage, sunflower and watermelon). Agronomists trained women in improved farming practices, including, sowing techniques, irrigation, weeding and pest management. These trainings had a direct impact on the quantity of production and the household income. Finally, kitchen gardens have brought an important social and economic benefit for the female farmers.

They have the opportunity to meet, discuss problems, share concerns, improve their self esteem and realize their own capacities through valuable activities and take part in daily market-led activities, (CRS, 2008, p. 8). Therefore, mobilization of women and allowing them to participate in economic and social activities of their communities has motivated surrounding communities within Herat to take such initiatives and contribute to their household livelihood options.

5.8 Off-Season Production

5.8 Poly Tunnels or Greenhouses

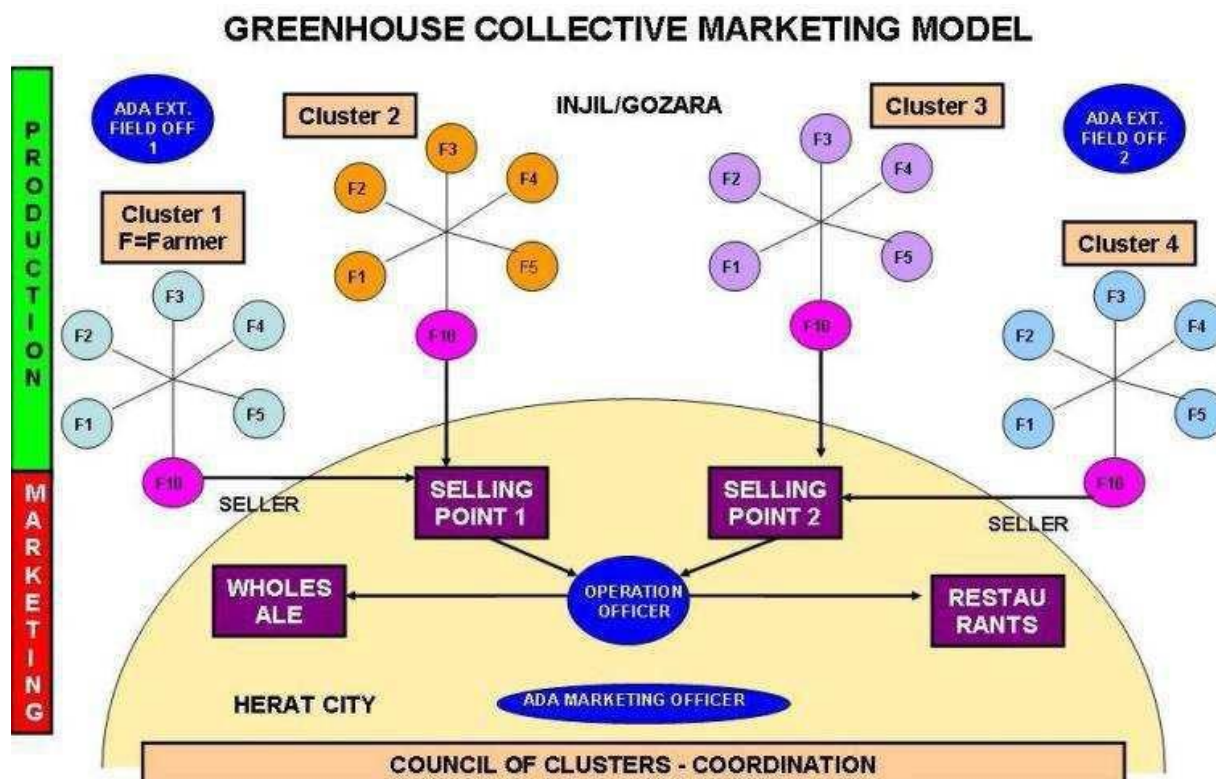
The purpose of poly-tunnels (greenhouses) are to expand and build an economy of scale in cold-season. The aim is to produce vegetables and other necessary crops that can contribute to substituting imports from outside the country. Many farmers are cultivating and harvesting their products only during 3 seasons of the year and they rarely have vegetables, foodstuff and fruits during winter cold months. "Since 2007, CRS has built 289 greenhouses to allow farmers to produce vegetables during off-season periods. In addition, farmers are trained on technical methods of greenhouse construction, fertilizer application and crop cultivation" (CRS, Workplan, 2008). The successful expansion of

greenhouse production has attracted the participation of entrepreneurs who are willing to invest in the greenhouse industry, adapt high-end technologies, and create employment opportunities, which will raise income levels within rural areas. The main factor in greenhouse production is the weather condition. Greenhouses allow the harvesting of summer crops until late fall, and herbs are introduced during winter as they are more resistant to cold conditions and can be grown without heaters, (CRS, 2008). For instance, "Seedling production has been found to be optimum during late winter/early spring when temperatures starts increasing, which allows for early crops production" (CRS, 2008). Some greenhouses are built within areas where women are also able to attend trainings. Crop planning is very important in greenhouse cultivation; therefore, CRS has distributed a crop calendar to all farmers indicating the proper time for greenhouse crop cultivation. In addition, "greenhouses allowed farmers to earn at least \$50 per month during 4 months of the cold season, including those with limited land, sharecroppers, and laborers which can rent space seasonally for greenhouse production" (CRS, 2208). Similarly, CRS has established a greenhouse growers association to expand greenhouse production in western Afghanistan. This is in an attempt to gain the interest of entrepreneurs, who are willing to invest in the greenhouse industry, (CRS, workplan, 2008, p. 4). As a result, greenhouse production contributes to a large degree of farmers' food ration and livelihood means within Herat districts during the cold winter months, particularly to the poor landless families. Additionally, farmers could be encouraged to replicate greenhouses in their own style and ultimately could be able to sell surpluses in the nearby local markets and generate income.

5.9 Technical and Marketing Assistance

According to a CRS report (2008) agronomists in close collaboration with extensionists from MAIL (Herat) have been providing on-farm training, field days and research-farm trials to build the capacity of greenhouse production and encourage on-farm experimentation. This technical assistance has been a critical part of the success of greenhouse production to date. With the expected rapid increase in greenhouse

production through agro-enterprise development, there has been considerable demand for adequate technical training. CRS provided assistance through its agronomists. Furthermore, they also promoted marketing improvement for greenhouse producers through collective marketing and improvement in transport and packaging through its post-production and marketing activities. These efforts have been split between two components, collective marketing and women's participation to livelihood improvement. In addition, through its collective marketing entrepreneurship, CRS supported the farmers' clusters in securing sales for larger quantities. Cluster marketing specialists, along with farmers, visited restaurants and managed to sell herbs and fresh vegetables. The price offered to restaurants was slightly lower as larger quantities were negotiated and expected to be sold. CRS, along with farmers' representatives, expect in the next couple of years to build on these successes and expand the volume of products sold in bulk, (p. 13).



(Source: CRS, report, 2008, p. 13)

However, according to the illustrative chart above, CRS has collectively supported a chain-based marketing entrepreneurship along with farmers' clusters to link them to the selling points in Herat local markets. This intervention has brought about logistical support. Therefore, CRS is building a structure to expand the marketing opportunities and support the strengthening of the clusters. A council of clusters from Injil and Gozara districts has been formed and linked to selling points and restaurants to sell their greenhouse productions in Herat city. CRS has also appointed its staff to strongly support the marketing process and to build farmers' skills in order to administer the operation, expand sales and generate income.

Chapter 6

6.1 Conclusions and Summary

This chapter summarizes the study's findings and the important conclusions drawn from the empirical and data analysis. In brief, this thesis has examined sources of household income, concept of agro-enterprise and income generation factors in rural areas of Afghanistan and determined the sources of household (farmers) income in the country especially in Herat province. Data on different situations of households was collected through questionnaires on household income in Afghanistan.

Furthermore, this thesis discussed and analyzed the concept of agro-enterprise and its components as prominent tools for agriculture development within the context of developing countries and in particular post-conflict states such as Afghanistan. Indeed, improvements within the agriculture and agro-enterprise scenario has an influential impact on income generation of the rural farmers and thereby has contributed to local economic development. However, this dissertation sought to identify the key and effective agro-enterprise market-led mechanisms, Household income tools and their efficient factors influencing the process of economic development through primary and secondary data analysis. Certain issues that have hindered the quality and quantity of agricultural production in developing countries have been elaborated upon. In addition, the current profile of the local small-scale farmers' situation within Herat districts has been explained thoroughly in an attempt to evaluate and analyze the agro-enterprise compact and its positive impact on local socioeconomic growth.

A sample of 1,236 households was selected using a stratified sampling strategy with respect to six districts of Herat province. To study correlation between sources of income and income of households and to recognize the factors affecting household income multiple regression analysis with the assumption of the Mincer Model, Cobb-Douglas production function and pooled estimation with separate analysis of the Mincer Model

were used. Average household size was found to be 8.05 members per household, which is higher than in a neighboring country like Iran, which has 4.8 persons per household.

Additionally, it was found that accession and accessibility to market has a significant impact on the level of growth within individual households. Therefore, within this research attempts have been made to include both theoretical findings based on desk research and practical descriptions in the field based on a pilot project, which describes the main successful factors influencing the development of an agriculture based economy. Various factors have been examined to explain the lagging economic development process in the agri-business and agro- enterprise spheres. Data has indicated that income levels of local farmers in the developing countries are restrained by a lack of agricultural resources, a high level of dependency on traditional types of agriculture and lack of access to modern agri-business markets. Such unfavorable elements have contributed to low income generation and kept the economic growth at its very bottom stage. It was found that it is essential to link small-scale farmers to local and national markets. This would provide them with the opportunity to increase their level of income by selling more products at higher prices.

In addition, different agro-enterprise options have been tested to find out the most important and feasible possible ways in order to measure the cost- benefit analysis through interventions of agro-enterprise approaches. Furthermore, the viability, the market opportunities and the options for further execution of the agro-enterprise projections have been explored. It was found that NGOs play a significant role in the operation and lay out of agro-enterprise development interventions. Additionally, findings in this research show that modernizing the agriculture industry could be pursued through concepts of agro-enterprise and agribusiness mechanisms. These findings are an important justification for policy makers to consider such strategies in domestic and local economic development prospects, as well as to engage different stakeholders to allow long term economic prosperity.

Admittedly, it is important to bear in mind that agricultural development and food security guarantees the livelihood of the people in the poorer countries since the majority of the population in LDC depends on agriculture for subsistence and daily food ration. Although, changes and adaptations are effective ways to develop a sector, the rate which changes are taking place in agro-enterprise approach needs time to be internalized by farmers. Farmer's capacity building is an important aspect in developing innovation and entrepreneurship processes. Findings have shown that farmers with better knowledge have been successful in improving their livelihood conditions. Within the CRS project, some farmers have proved their strengths and motivation to learn and adapt new technologies to the changing environment within the market sphere. It has been found that, farmer's associations are still at their developmental stage and are less coordinated to address their problems. However, it is important to deploy more learning opportunities for individual and marginalized farmers on a wide range of activities including, agriculture mechanization, standard cultivation methods, harvesting and post-marketing to organize and strengthen farmer's collective actions in order to increase household income in general.

Similarly, within the CRS range of activities, farmers' levels of participation in agro-enterprise development processes in rural Afghanistan (Herat) are increasing. As a result farmers' are now able to decide what to produce, how to produce and what kind of crops to choose. Finally they are able to undertake market principles based on international norms and standards. Therefore, these innovations through agro-enterprise involvement, if well managed, will enable farmers throughout the country to improve their productivity and facilitate innovative processes to reduce transaction costs. In fact, to achieve such an objective and fulfill the agro-enterprise development strategy, a better streamline of implementation and guidelines would be required. The government related sector needs to strengthen the level of interactions between the public and private sector service providers. It has been tested that, establishing links and contacts among various stakeholders within the agro-enterprise is necessary to ensure proper sharing of information and exchange of knowledge among farmers.

Inadequate road condition and transportation still remain a stumbling block in the development of agro-enterprise under the CRS arrangement. However, applying agro-enterprise as a strategy to improve agricultural productivity is justifiable both to bring a change and to develop the existing traditional agro system in most of the developing world and in particular Afghanistan. Furthermore, data analysis from CSO and CRS has also proved that agro-enterprise development concepts contain important factors contributing to growth in the agriculture economy. It was found that, modern cultivation methods, introduction of high value and aromatic crops, community mobilization, market connections, collective marketing, value addition, capacity building and eventually standard post-harvest techniques have all immensely contributed to an increase in the productivity level and increase in household income.

Data has indicated that engagement of the agro-enterprise development is necessary. Indeed to improve agricultural mechanization within the rural areas, implementation of agro-enterprise strategies is key to local economic development. On the overall, data has shown that agro-enterprise development process involves engagement of various actors and stakeholders. Therefore, it is considered necessary that government and implementing partners (NGOs) should combine their efforts in order to ensure correct implementation and inflows of positive spillovers contributing to economic growth in developing countries.

Conclusively, successful agriculture development, which guarantees socioeconomic growth, is largely dependent on the application of agribusiness and agro-enterprise mechanisms as a strategic approach. Based on previous findings, agro-enterprise comprises concepts such as value addition, collective marketing, cultivation techniques, post-production, transportation, greenhouse, introduction of high profit crops and basic market-led agriculture training. These components are all important ingredients for a successful agro-enterprise development process. They are the essence of agribusiness and agriculture development and therefore should be considered in the process of

agriculture mechanization of developing countries in an attempt to foster economic growth and ensure higher standards of living for the household economy.

6.2 Recommendations

The following presents specific recommendations drawn from the research to help improve the implementation process of agro-enterprise development in the districts of Herat and the agro-enterprise strategy as a whole. Definitely feasible options are the most important possible ways to undertake within the operational process.

(a) In order to link small-scale farmers to local and national markets, there is a vital need to focus on strengthening Public_ Private Partnerships (PPP) as an essential factor to develop market pull for the small-scale subsistence farmers. This will improve farmers' accessibility to national and international markets. Furthermore, it will help orient farmers' towards market commercialization of agriculture and link farmers' products to agro-processing. Finally, it will add value to agricultural products for increased income. This can be achieved through the formation of farmers' collective marketing associations.

(b) To build capacity of farmers in market-led agriculture, there should be an understanding of teamwork, transparency and trust practiced in sharing effective market information and knowledge between stakeholders. The government, NGOs and the private sector should strengthen and coordinate capacity-building programs to every cluster on different subjects.

(c) The extension and production department of MAIL, together with CRS Marketing section, should work at both the districts and sub-districts level to initiate better developmental policies for those farmers who are still not part of the agro-enterprise development program in the region. Emphasis needs to be placed on strengthening social learning and communication linkages among female farmers. Women should be given equal opportunities to participate in post- production and marketing initiatives.

(d)MAIL and CRS should create a code of conduct and negotiate with other ministries handling other sectors to convince them work for the local infrastructure development and in particular road rehabilitation projects. Farmers' concerns in regard to poor infrastructure conditions which influences their agricultural productivity negatively, and land-related issues should be considered essential and brought on the board. Indeed CRS cannot work without dependency on these sectors' contribution. Efforts need to be undertaken to bring other sectors in and improve relations in an effort to achieve better output and sustain a positive outcome.

(e)In order to improve farmers' participation in national Ag-Fairs (Agriculture Fair, "farmers gathering to market their products in the market stalls") at the national level, attempts need to be made to take the lead and strengthen the existing farmers' associations at the district and country level to support farmers collectives and build a strong network to act independently, boost agricultural developmental policies and expand export channels to global markets. This is ultimately possible but needs commitment, investment and time from the all stakeholders involved in the process.

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Appendices

1 Appendix I

Table A.1: Factor Affecting Household Income in Rural Areas of Kabul

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Method: Least Squares

Sample: 1 1236 IF DR=1

Included observations: 261

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.545922	0.039750	64.04902	0.0000
AGEOFHH	0.000714	0.000868	0.822421	0.4116
CHILDREN	0.010288	0.011096	0.927232	0.3547
EDUCATION	-0.001761	0.004062	-0.433488	0.6650
EXPERIENCE	0.001103	0.000190	5.816955	0.0000
HOUSEHOLDSIZE	-0.001973	0.008511	-0.231825	0.8169
FEMALE	-0.010572	0.012551	-0.842340	0.4004
LANGUAGE	0.001004	0.000138	7.275447	0.0000
MALE	0.004687	0.010727	0.436980	0.6625
MARRIED	0.034582	0.019178	1.803167	0.0726
SAVING	7.49E-05	0.000352	0.212951	0.8315
NARCOTICS	-0.000204	0.000176	-1.162315	0.2462

R-squared 0.315912
Adjusted R-squared 0.285691
F-statistic 10.45346
Prob(F-statistic) 0.000000

Table A.2 : Factor Affecting Household Income in Rural Areas of Herat

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Method: Least Squares

Sample: 1 1236 IF DR=1

Included observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.679732	0.077276	34.67740	0.0000
AGEOFHH	-0.001990	0.001468	-1.355242	0.1798
CHILDREN	-0.043707	0.039918	-1.094915	0.2774
EDUCATION	-0.000216	0.005920	-0.036472	0.9710
EXPERIENCE	0.001087	0.000427	2.546803	0.0131
HOUSEHOLDSIZE	0.036953	0.037357	0.989204	0.3261
FEMALE	-0.051977	0.040295	-1.289903	0.2015
LANGUAGE	0.000411	0.000360	1.141961	0.2575
MALE	-0.023424	0.039104	-0.599005	0.5512

MARRIED	0.021014	0.036940	0.568874	0.5713
SAVING	0.000354	0.000288	1.226506	0.2242
NARCOTICS	9.54E-05	0.000183	0.520705	0.6043

R-squared	0.249882
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Adjusted R-squared	0.128539
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F-statistic	2.059306
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Prob(F-statistic)	0.035556
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Source: Own Field Research Data

Table A.3: Factor Affecting Household Income in Herat

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Method: Least Squares

Sample: 1 1236

Included observations: 200

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.654215	0.042469	62.49744	0.0000
AGEOFHH	-0.001238	0.000883	-1.402878	0.1623
CHILDREN	-0.033411	0.030265	-1.103928	0.2710

EDUCATION	0.001887	0.004261	0.442872	0.6584
EXPERIENCE	0.000585	0.000279	2.094994	0.0375
HOUSEHOLDSIZE	0.035213	0.029271	1.203003	0.2305
FEMALE	-0.051390	0.031412	-1.636001	0.1035
LANGUAGE	0.000278	0.000238	1.170506	0.2433
MALE	-0.026947	0.029733	-0.906297	0.3659
MARRIED	-0.003133	0.021560	-0.145303	0.8846
SAVING	0.000570	0.000195	2.925634	0.0039
REMITTANCE	0.000327	0.000124	2.635793	0.0091
NARCOTICS*DR	0.000112	0.000170	0.658522	0.5110

R-squared	0.161964
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Adjusted R-squared	0.108186
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F-statistic	3.011728
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Prob(F-statistic)	0.000698
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Source: Own Field Research Data

Appendix

Table A.1: Analysis of rural area of Herat with Cobb-Douglas Production Function

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Included observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	2.661880	0.068438	38.89486	0.0000
EDUCATION	0.000712	0.005857	0.121506	0.9036
EXPERIENCE	0.000733	0.000407	1.801448	0.0759
LANGUAGE	0.000537	0.000350	1.536007	0.1290
LOGCAPITAL	-0.014221	0.014171	-1.003519	0.3190
NARCOTICS	-0.073599	0.090708	-0.811388	0.4199
SAVING	0.000691	0.000269	2.573535	0.0122
LOGWORKINGMEMBERS	-0.092908	0.085673	-1.084444	0.2818
LOGLAND	0.088174	0.071572	1.231959	0.2220
R-squared	0.229070			
Adjusted R-squared	0.142205			
F-statistic	2.637070			
Prob(F-statistic)	0.013697			

Source: Own Field Research Data

Table A.2: Analysis of rural area of Herat with Cobb-Douglas Production Function

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Included observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.
----------	-------------	------------	-------------	-------

C	2.661880	0.068438	38.89486	0.0000
EDUCATION	0.000712	0.005857	0.121506	0.9036
EXPERIENCE	0.000733	0.000407	1.801448	0.0759
LANGUAGE	0.000537	0.000350	1.536007	0.1290
LOGCAPITAL	-0.014221	0.014171	-1.003519	0.3190
NARCOTICS	-0.073599	0.090708	-0.811388	0.4199
SAVING	0.000691	0.000269	2.573535	0.0122
LOGWORKINGMEMBERS	-0.092908	0.085673	-1.084444	0.2818
LOGLAND	0.088174	0.071572	1.231959	0.2220

R-squared	0.229070
Adjusted R-squared	0.142205
F-statistic	2.637070
Prob(F-statistic)	0.013697

Source: Own Field Research Data

Table B.1: Analysis of rural area of Herat with Cobb-Douglas Production Function

Dependent Variable: LOGMONTHLYINCOME in US \$ in 2025

Included observations: 120

White heteroscedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	2.656118	0.068752	38.63306	0.0000
EDUCATION	0.002861	0.005317	0.538146	0.5915
EXPERIENCE	0.000321	0.000294	1.091572	0.2774
LANGUAGE	0.000127	0.000240	0.530264	0.5970
LOGCAPITAL	-0.005999	0.012435	-0.482408	0.6305
REMITTANCE	0.000333	9.43E-05	3.536044	0.0006
SAVING	0.000613	0.000250	2.455083	0.0156
LOGWORKINGMEMBERS	-0.082036	0.084061	-0.975912	0.3312
R-squared	0.118819			
Adjusted R-squared	0.063745			
F-statistic	2.157444			
Prob(F-statistic)	0.043305			

Source: Own Field Research Data

STUDY AREA



(Map of Afghanistan showing administrative division and provincial capitals)

http://www.longwarjournal.org/images/afghanistan_map.jpg

Interview Questions:

1.How many members of your household have earning income? Please specify persons

2.Are there income between male and female in your family is different?

Yes

No

3- If the level of income in question 2 is different between male and female how much it is.? Please specify in Afghani ||||

4- What are the income source of your family members? (See in the table below)

Estimated Contribution of Different assets to household income

Assets	Income Sources	Monthly income from assets (Afghani.)	Total income
Farm income generation and activities	Farming Livestock Narcotics		
Non-farm income generation and activities			

	Employed		
	Self-employed		
	NGO-income		
	Social-transfers		
	Saving		
	Remittance		

Second part Interview Questions:

1. What problems do farmers generally have in terms of crop cultivation, post harvesting and marketing?
2. What problems do farmers face to market their products locally?
3. Why did CRS choose to work in western Afghanistan and in particular Herat?
4. Has there been any project to address issues before?
5. What is the distance between the farms and the market center?
6. What is the effect of collective marketing under CRS agro-enterprise development project?
7. What needs to be done, by who, to strengthen the farmers' marketing system?
8. What types of trainings does CRS provide to local farmers in Herat districts?
9. What is the effectiveness of farmers' associations in terms of better productivity?

10. Has there been any change since CRS stepped in? if yes, what are the main improvements?
11. How is the infrastructure condition and in particular transport network?
12. Please describe the main initiatives by CRS in terms of marketing entrepreneurship?
13. What has been the contribution of the training sessions, farmers' meetings in improving agro-enterprise project through CRS activities?
14. What has been farmers level of contribution in CRS activities locally?
15. What have been farmers' perceptions as individuals about the CRS agro-enterprise development project?
16. What are the difficulties faced in the process, are stakeholders all actively involved?
17. Are there issues that are discouraging, which might have affected participation of farmers in agro-enterprise project?
18. What other factors may be helpful to farmers in terms of socio-economic condition?
19. Which stakeholders do you normally interact with? Is government also interested in what CRS has implemented in the field?
20. What is SHG? How female farmers are involved in the agro-enterprise process led by CRS?
21. What is the perception of men about women involved in the project?
22. What types of new profitable crops have been introduced to farmers by CRS?
23. What is greenhouse? how effective greenhouse production has been so far?

24. How did farmers sell their products before? Please explain the new methods of marketing?
25. What are plans? Will CRS continue to expand its agro-enterprise development project to other areas?
26. What are the major changes in terms of socio-economic development?
27. How is the process of farmers' mobilization by CRS? Are farmers satisfied with new methods of cultivation and market initiatives?
28. Have communication and exchange of market information among farmers improved?
29. What are the strengths of agro-enterprise marketing in Herat districts?
30. What has been your level of participation and contribution to the agro-enterprise project?

