IMPACT OF RURAL FINANCIAL SERVICES ON FOOD INSECURITY AND ALLEVIATION OF POVERTY, A CASE STUDY OF EL NAHOUD CO-OPERATIVE CREDIT PROJECT, SUDAN

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Dedication

To:

Soul of My father and

Everyone who taught me a letter and to all farmers
Acknowledgement

Special appreciation and thank are extended to Dr Awadalla Mutasim Abdalla Osmans, university of Khartoum, for greater support and supervision

I wish to record my feelings of deep gratitude and indebtedness to my father Abd alla Abd alaziz for his support and encouragement

Finally, I wish to extend warm thanks to all those whose names are not mentioned here, which encouraged or supported me in different ways during the preparation of this thesis
لا يوجد نص يمكن قراءته بشكل طبيعي من الصورة المقدمة.
ولقد بينت الدراسة أن الفترة خلال وبعد المشروع في منطقة النهود ازداد إنتاج المحاصيل الزراعية والمساحة المزروعة، وإن موقعهم تجاوbh البذور المحسنة لانتاج وتوزيع المحاصيل التي تم تدشينها تأثرت بعوامل لها علاقة بإمكانيات الراسخ بما يتعلق بمحاسن ومساواة خدمات التمويل الزراعي. هذا الإقناع شكل على الظروف الاجتماعية والاقتصادية والمعتقدات الاجتماعية، والإبداع بضيوف توفر خدمات التمويل بتوفير المدخلات المطلوبة للعملية بطبعية المنطقة.

لقد أوضح مساهات الدراسة أن المزارعين في المنطقة وظفوا باختيار وتوزيع نشاطات العمل خلال العام عبر تكامل النشاط الزراعي وغير الزراعي لتثبيط استمرار إدراك الدخلك.

لقد أوضحت نتائج الدراسة أن الاستهلاك الغذائي لء (Correlation) المزارعين بعد الاستفادة من خدمات مشروع التمويل (ENCCP) يرتبط ارتباط إيجابي ومعنوي مع حجم الأسرة. دخل الأسرة، انتاج المزرعة، وتنبيه التقنية الحديثة التي ادخلت في المنطقة، ولقد أوضحت الدراسة أن حجم الأسرة يؤدي سلبا على الاستهلاك الأوسط قبل برنامج التمويل.

كما أوضحت دراسة تحليل الارتباط (Correlation) أن وضع الأمن الغذائي بعد برنامج التمويل يرتبط ارتباطا إيجابيا ومعنوي مع حجم المزرعة، الاستهلاك الغذائي لء، اعمار أفراد الأسرة، دخل الأسرة، ونتاج المزرعة، ولقد أوضحت الدراسة أيضا أن المستوى التعليمي لأفراد الأسرة يؤدي سلبا على وضع الأمن الغذائي. ولقد أوضحت دراسة تحليل الارتباط (Correlation) أن انتاج المزرعة يؤدي سلبا على الاستهلاك الأوسط قبل برنامج التمويل الزراعي المنطقة.

اظهرت نتائج تحليل الارتباط (Correlation) أن مستوى دخل الأسرة للمستفيدين يرتبط ارتباطا إيجابيا ومعنوي مع حجم المزرعة، ونتاج المزرعة، اعمار المزارع وتباين التقنية التي ادخلت في المنطقة، كما أظهرت الدراسة أيضا أن حجم الأسرة يثير سلبا على مستوى الدخلك.

كما أوضحت دراسة نتائج تحليل الارتباط (Correlation) للمستفيدين يرتبط ارتباطا إيجابيا ومعنوي مع انتاج المزرعة، حجم المزرعة، ويثير سلبا مع مستوى التعليم وحجم الأسرة.

VIII
فقد بنيت دراسة تحليل الارتباط (Correlation) أن انتاج المزرعة يرتبط ارتباطا إيجابيا ومعنوي مع حجم المزرعة، وتبنى التقنيات وعمر المزارع، ويتأثر سلبًا مع حجم الأسرة بعد برنامج التمويل.

فقد بنيت دراسة تحليل الارتباط (Correlation) أن تبني التقنيات الحديثة يرتبط ارتباطا إيجابيا ومعنوي مع المستوى التعليمي للمزارع وحجم الأسرة بعد برنامج التمويل الزراعي، ويتأثر سلبًا مع المستوى التعليمي للمزارع وحجم الأسرة قبل برنامج التمويل في المنطقة.

تقييم أثر التمويل بيند بواسطة استعمال انحدار (stepwise regression) عملية المسار وذلك لتحديد العوامل التي تؤثر تأثيراً مباشرةً أو غير مباشرة لتفادي الفقر وتحقيق الأمن الغذائي وسط المزارعين الريفيين قبل وبعد برنامج التمويل الريفى في المنطقة. وجد ان كمية الانتاج، المساحة المزروعة، وتبنى المستحدثات العلمية من العوامل المؤثرة على الأمن الغذائي وسط المزارعين الريفيين. بينما وجد استدامة فرص العمل خلال العام (الموسم الزراعي وغير الزراعي)، والأمن الغذائي، حجم الأسرة والمستوى التعليمي من العوامل المؤثرة على دخل الأسرة.

اقترحت نتائج دراسة توجيه اهتمام أكثر بواسطة جمعيات المزارعين واختيار وتطوير تمويل الانتاج الزراعي ومشاريع زيادة الدخل والعوامل المؤثرة على الانتاج وتنمية مبتكرات المعرفة الموروثة الملائمة للبيئة المحلية وتوثيقها مثل اهمية توفير المعرفة العلمية الملائمة للمزارعين. وقفت الدراسة أن 4 عوامل مؤثرة في زيادة الانتاج والدخل ورفع توصية لتجربتها وتطويرها وداستها بواسطة البحوث العلمية.
ABSTRACT

This study was carried out to assess the impact of rural financial services for the alleviation of poverty and food insecurity in En Nahoud area, West Kordofan state, Sudan, and to identify the factors associated with the increase of agricultural production and sustainable incomes.

The study constituted attempts toward the documentation of impact of the rural financial services especially agricultural finance on farmers and passing the recommendation to agricultural research stations to test and further development of adoption of innovation by farmers in the area.

The study cover seven core villages that were targeted and by agricultural extension and finance through En Nahoud Cooperatives Credit Programme (ENCCP) which was jointly implemented by the west Kordofan Ministry of Agricultural and Natural Resources, during the period 1987-1995.

The impact composed of 69 respondents with equal representation of male and female included beneficiaries of the programme who practical agriculture activities before, during and after the (ENCCP).

Data analysis involved the use of the Statistical Package for the Social Science (SPSS) computer programme.

T.test analysis revealed no significant differences between two period of before and after (ENCCP) in transport crops use and benefit from crop residues and method of crop marketing. Also the result of T.test analysis showed that the period after (ENCCP) was significant different from the period after (ENCCP) in term of quality of farm products, area under crops, variety and consumption of food, household income, food security status diverse and work opportunity, saving, capacity building and degree and attitude of adoption of innovation. This was attributed to the fact that farmers after (ENCCP) become more
exposed to agricultural extension and financial services, which were focused on income generation activities, farm products and capacity building.

The (ENCCP) was implemented partnership with the farmers cooperative association

The study revealed high level of innovation among farmers in En Nahoud area in farm experimentation with improved seeds during and after (ENCCP) whose result encouraged farmers to engage more vigorously in experimentation with production techniques and adoption of improved practices. The result of the study indicated that the period during and after (ENCCP) in En Nahoud area increased farm production and the area under crops. Farmers attitudes towards adoption and rejection of scientific technological packages for the production of crops investigated in the study were found to be influenced by factors related to their convictions concerning the advantages of the introduced scientific innovations compared to local production techniques.

The study revealed that farmers in En Nahoud area are employed in alternative jobs during the year in farm and non – farm activities to ensured and sustained incomes.

Correlation analysis indicated that the consumption of food by farmer families after (ENCCP) is passively and significantly associated with the family size, family income, farm product and adoption of scientific innovations.

Correlation analysis indicated that the food security status after (ENCCP) is positively and significantly associated with farm size, consumption of food for farmer families, age and family income and negatively and significantly associated with education level. Moreover correlation analysis indicated that negatively and significantly associated with farm product before (ENCCP).
Correlation analysis resulted showed that the level of farm income after (ENCCP) is positively and significantly associated with farm size, farm product, farmers age and adoption of technology, negatively and significantly associated with family size and education level. This was found to be true for the period before (ENCCP), except for adoption of technology.

Correlation analysis revealed that the farm product after (ENCCP) is positively and significantly associated with farm size, adoption of technology and age of the farmers, negatively and significantly associated with the family size and saving.

Correlation analysis resulted indicated that the adoption of technology after (ENCCP) is positively and significantly associated with education level and farm size.

The revised casual models were generated through use of stepwise regression analysis and the application of the path analysis procedure to determine factors affecting food security and poverty alleviation directly or indirectly among farmers in En Nahoud area before and after (ENCCP). The determine of the farm products through adoption of new and improved seeds by farmers and farm size after (ENCCP) were positively influencing farm income and products in addition to sustain of work opportunity through the rainy seasons and off-season.

The finding of the study suggest that more attention should be directed by researchers to test, development and documentation of finance farm product, income generation project and the factors affecting farm products and innovative knowledge adopted to local environments, such as the importance of availability of scientific knowledge and credit to the farmers through farmers association.
CHAPTER ONE
INTRODUCTION

1.1 Background

The extent and depth of poverty in the developing world at the close of the 20th century is astonishing. About 103 billion peoples (30 percent of the population) live in absolute poverty, with only a dollar a day or less per person to meet food, shelter and other needs (FAO1999). Not surprisingly, hunger, malnutrition and associated diseases are widespread. More than 800 million people do not have access to sufficient food to lead healthy productive live, millions more live on the edge of hunger and more than 180 million school children are significantly under weight for their age, sowing the seeds for future food insecurity.

The current rural household production responsibility system requires steady support and improvement. A food-insecure household may lose access to required food and even face famine and hunger when is or more of components of entitlement break down.

Common obstacles to access to food are war civil, strife, poor infrastructure, poor access to employment and production and poor access to household food security, inadequate logistics for food distribution and market imperfections.

Such problems are more likely to exist Financial services for the poor focused on access to credit and improving access to production to meet their consumption needs and reduce the poverty.

Designing and implementing rural financial system for the rural poor require economic resources and adequate consideration of long-term social returns. Policy choices must weight the social cost of supporting the creation of rural financial systems for the rural poor against their social benefits well-directed support. Including initial subsidies, to promising micro-finance institutions are likely to have pay-off in both
equity (services to the poor) the role of rural financial services for alleviation of food insecurity and poverty.

At the first glance, many might be attempted to say that the poor in developing countries earning income of less than a dollar per day are neither credit-worthy nor are they able to save. Recent Socio-economic research has shown that these common assumptions are unfounded. Yet, much of rural financial policy until the end of the 1980s was based on these faulty premises, and frequently, still leads to inefficient detrimental policies for stability of rural financial markets in developing and transformation countries. Past policy neglected to provide savings and insurance services, and emphasis was on giving loans.

Moreover the concept of lending often is being mixed up with that of providing relief or assistance. Most of the so-called credit project quickly degenerated transitory income transfer programmes with doubtful coverage of the poor, but with never-ending need for injecting public resources.

The capital requirements of agricultural and rural development are tremendous. Capital is required not only for on-farm investment to improve the production apparatus and to provide various farm inputs and services, but also for a vast array of supportive infrastructures facilities, such as power, roads, transportation, communication, marketing, storage, education, training, research and capital is also required for creation of non-farm jobs though the provision of factories and their complement machining and equipment.

No doubt food has the top priority on human life in this world. Since there is an individual suffering from hunger. This confirms that food is one of the human rights and should be granted for all. The main constrains of food insecurity is the poverty. All efforts should be made alleviation poverty and to increase production.
The Sudanese rural area is estimated by million of effectors and this should be productive for a number of crops and livestock due to variation in climate but unfortunately only 15% of area is used at the moment.

The phenomena of hunger is not new in the Sudan, it happened many times, it was counted that about 29 hunger, 9 are small 17 middle and 3 are major ones had happened. Those three major one, are during 1784, 1887, and 1985

1.2 Problem statement of the research

Food insecurity may be practically a natural problem where by all or most of the population does not get the headed basic food needs. Food insecurity may be a household problem when the family does not have access to sufficient food due to general or localized factors or due to limited access to production. Food insecurity may be a chronic problem whereby the peoples are always underfed. In many cases however, transitional food security problems are experienced due to temporary decline in household access or enough food for physical, biological or political causes.

A food insecure household may loose access to the required food and even face famine and hunger when one or more of the component of entitlement break down.

Common obstacles to access to food in En Nahoud are warcivil, strife, poor infrastructure, access to employment and production and poor access to household food security, inadequate logistics for food distribution and market imperfections.

In the Sudan as in other developing countries where poverty, unemployment and illiteracy represent of major obstacles for alarge population which do not to permit them to have enough capital to establish small enterprise activities and cultivate large areas and to produce various kinds of agricultural production.
The major reason behind their failure to access financial institution, to obtain agricultural services and credit resides in the absence of collateral

1.3 The scope of the study

The scope of this study is limited to investigate the contribution of rural financial services, for alleviation of food insecurity and poverty, to embrace the essential component of household food security namely access to increase agricultural production and sustainability of access provide a well, focused scope for discussing rural finance services and assessment of household food security and poverty. Also this research deals with experience of IFAD in financing productive and it covers the success of the bank in obtaining the loan and financial services to sustain the families’ income.

1.4 Objectives of the study: -

The overall goal of the research study is the assessment of the impact and sustainability of the rural financial services for alleviation of food insecurity and poverty in En Nahoud area. The principal objective is to test and examine the loans and financial agricultural services and adoption of technology and examine the term of benefits or risk from the services which has introduce for them

The specific objectives of this study are: -

1- To identify the assess of IFAD’s rural finance services on the household food security and poverty irradiation as objectives of En Nahoud Western Kordofan Province project.
2- To investigate the major factors affecting agricultural credit needs and of IFAD’s financial system ability to meet these needs.
3- To determine the effectiveness of financial system and constraint of production in En Nahoud province.
4. To assess the capacity for saving, marketing and consumption among rural people in En Nahoud Province.
5. To intend to highlight future prospects for the sustainability of small enterprises and production in increasing their income for better living.
6. To find out the rate of changes that happened as a result of providing agricultural services and generate recommendations based on research findings for improving rural finance services.

1.5 Justification

It is important to provide information and setting up rural financial services and credit system for the poor population as well as improving sustainable agricultural production. The ultimate goal is to raise standard of living, and to ensure food access, to adequate amount of food must be within the physical reach for vulnerable household whether through their own production or through the market. Household food security can be ensured only when the capability to acquire food exists.

While the importance of the poverty alleviation is now being increasing recognized, there is still great skepticism about whether programmes to alleviate poverty and secure the food whether their social justification, is economically viable. This lies at the road of the, trade-off, view of poverty alleviation and growth

The new development paradigm conceives of poverty alleviation is not just as a mechanism to get the poor to cross a given threshold of income or consumption (do not give me the fish but teach me how to catch it). But as sustainability increase in productivity and an integration of the poor into the process of growth happens.

1-6 Organization of the thesis: -

The thesis is constituted of six chapters the contents of which are summarized below: -
Chapter one: -
Is an introductory chapter in which the background problem, objective of the study and justification are stated.

Chapter two: -
Includes a review of relevant literature on rural and sustainable development, food security, poverty, rural finance services, access of the rural poor to resources (land, infrastructure, social services, irrigation, transportation, communication, marketing, nutrition, technology, tradition crop development, labor and saving)

Chapter three: -
Gives background introduction about IFAD project financial services the project location, design, rationale, component objective of the project, target groups population, strategy, organization and grass-root level

Chapter four: -
Present research methodology of the thesis includes the conceptual model, the hypotheses to be test, method of sampling, data collection and analysis.

Chapter five: -
Include the result and discussion of the study findings.

Chapter six: -
Includes the summary, conclusion and recommendation of the study.
2.1 Concepts and connotation of rural development

Development is a subjective and value-loaded concept, and hence there can not be a consensus as to its meaning. The term is used differently in diverse context. It basically means “unfolding” revealing, or opening up “something, which is latten”. When applied to human being, is therefore means “unfolding” or opening up’ their potential powers. Generally speaking, the term development implies change that is desirable. Since what is the desirable at particular time, place and in particular culture may not be desirable at other places, it is impossible to think of a universally acceptable definition of development. At best development in the context of the society could be conceptualized as a set of desirable societal objectives which society seek to achieve. Thus defined. Thus. All individuals, communities and nations, irrespective of their culture, religion and spatial location, cherish development.

These days, sustainable development has been become a buzzword. According to the World Commission on Environment and Development (WCED, 1997) sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

In simple words sustainable development is a process in which the set of desirable societal objective, all the development index, does not decrease over time constancy of natural capital stock. Includes natural resources and the environmental, is necessary condition for sustainable development. The set of sufficient conditions includes an appropriate institutional framework and governance system for implementation of sustainable development policy.

The term rural development connotes overall development of rural areas (area outside the jurisdiction of Municipal Corporation and committees and notified town area committee) with a view to improve the quality of life of rural people. In this sense, it is comprehensive and multidimensional concept, and encompasses the development of agriculture and allied activities, villages and cottage industries and craft, socio-economic infrastructure, community services and facilities, and above all the human resources in rural areas. As phenomenon, rural development is the end-result of interactions between various physical, technological, economic, socio-culture and institutional factors.
As strategy, it is design to improve the economic and social well being of a specific group of people – the rural poor. As a discipline, it is multi-discipline in nature, representing an intersection of agricultural, social, behavioral, engineering and management sciences (Chambers, 1983).

*Rural development* is a strategy to enable specific group of people, poor rural women and men, to gain for themselves and their children more of what they and need. It involves helping the poorest among those who seek a livelihood in the rural areas to demand and control more of the benefits of rural development. The group includes small-scale farmers, tenants and the land less.

Thus the term rural development me be used to imply anyone of the above-mentioned connotation. To avoid ineffective floundering among the myriad definitions, we shall define rural development as A process leading to sustainable improvement in the quality of life of rural people, especially the poor.

In addition to economic growth, this process typically involves changes in popular attitudes, and in many cases even in customs and beliefs. In a nutshell, the process of the rural development must represent the entire gamut of change by which a social system moves away from state of life perceived as “unsatisfactory”. Toward a materially may be compared conditions of life. The process of rural development may be compared with a train in which each coach push the one a head of it, and is in turn pushed by the one behind, but it takes a powerful engine to make the whole train moves. The secret of success in rural development lies in identifying, and, if needed, developing a suitable engine to attach to the train, there are no universally valid guidelines to identify appropriate engines of rural development. If at all they exist, it is a choice that is influenced by time, space and culture. (Singh 1999)

2.1.1 Concepts of food security

The concept of food security used in its most general form essentially means state of affairs where all people at all time have access to safe and nutritious food so as to maintain a healthy and active life (Petit and Gnaegy, 1994). This is the definition endorsed by a number of authorities e.g. FAO/WHO, 1992; USAID, 1992. FAO has operationalized the concept within its mandate by stressing those aspects of the phenomenon that are related to the availability and stability of food supplies at the national level, through both time and space, and access to food supplies at the household and individual, as well as national level.
The letter considerations are expressed in the definition of household food security accepted by a committee on world food security as “physical and economic access to adequate food for all household members without undue risk of losing such access”.

Although, the consequences of food insecurity are reflected ultimately on the individual nutritional status, it must be born in mind that the nutritional status of an individual, is also influenced by processes that determine the allocation of food within the household, it is intake by the individual, and its subsequent physiological utilization. In other words, health, sanitary, education, economic, social, gender and cultural factors all play apart in influencing what is essentially the nutritional well-being of the individual.

Ideally, therefore measures of food security should contain information having a bearing on the nutritional status of individuals, while somehow controlling for the effective of the other factors that may else influence nutritional status (Baida 1997).

2.1.2 Concept of household food security

In 1983 FAO defined the goal for world food security “to ensure that all people at all times have both physical and economic access to the basic food they need” (FAO, 1983). While food security for individuals is the main objective, there are also important households, national and global dimensions of food security. Adequacy of food at the global level on effective trading system are require for ensuring adequate supplies for food deficit countries. Whether such countries have access to require amount of food depends up on their ability to improve food commercially. Moreover, national-level adequacy does not ensure that all household are food secure.

Household food security is determined by both physical accesses to food and adequate purchasing power. While access to adequate food at the household level is needed to satisfy nutrition level for all members of household, nutrition security also depends on non-food factors such as satisfactory health and hygiene conditions and social practices. Thus household food security is one but not the only necessary condition for achieving the overall nutritional well-being of individuals (Young, Burton).

2.1.3 Economic growth (development)

Economic growth or development is the improvement of peoples’ level of living. This is measured not only in term of money, bus also of quality. If may be useful to regard “growth” as relating to more material elements, whereas “development” has also a social and cultural content. Major indicators of this level are:

One. Income per person
Two. Life expectancy at birth.
Three. Infant mortality rate;
Four. Food supplies in terms of calories available per person in relation to calorific requirements;
Five. Proportion of children aged 5-15 years attending school;
Six. Percentage of males and females in the total population above some appropriate age that are literate.
Seven. Proportion of the economically active population that are unemployed;
Eight. Proportion of the economically active population that are in the principal industrial and occupational categories;
Nine. Personal consumption as a percentage of national income.

The physical content of the level of living is measured by the quantity of goods and services consumed by each person over given period. Each of the above indicators measure are part of this level and generally the indicators all shift as economic growth occurs. Many indicators are highly correlated with the level of income per person and this can be used, therefore, as a general indicator. However, it is by no means a complete indicator, as western societies plagued by problems of traffic congestion, pollution and declining personal services are becoming increasing aware.

A distinction is sometimes drawn between growth, self-sustained growth, and accelerated growth. Self-sustained growth usually means that certain motivators are built into the economy in such away that it grows automatically. Accelerated growth means that the rate of growth is itself increasing, e.g. from 3% annually to 4%, 5% etc..

Countries beginning development rather late have often achieved high growth rates. These “late-comer” can benefit from the accumulated knowledge, experience and innovations of countries that started earlier. They have a better chance of avoiding some of the pitfalls. (Abbott,Makcham)

2.1.4 Role of Agriculture in economic development

Because of the predominance of agriculture in tropical economics, the farm sector has a key role in economic development especially in the initial stages. This contribution has often been under-estimated. Planners and economist in developing countries saw that the move advance economics were nearly all industrialized. They drew the conclusion that the major effort should be directed towards industrialization after to neglect of agriculture. The results have usually been unfortunate.

Essential though industrialization is in economic development, it must be accompanied by progress in agriculture if the economy is not to run into serious difficulties, as in the USSR and Argentine, for example it is dangerous to argue from historical analogy. There may be important different in population factors and competition on world markets.

The intensive application of technology to agriculture reaching into the developing countries as the “green revolution” led to another shift in though. Mechanization, the use of
chemical fertilizers and the breeding of new plant and animal varieties induce development where conditions are ripe for them. (Abbott, Makcham)

2.2 Sustainable development

Though, scholars differ in defining the term sustainability but they show similar and common grounds:

Meeting the needs of the present population, wise use of resources in development process, conservation of continuous development to satisfy the needs of the younger and future generations”. Some warn about the exhaustion immoderately of non-renewable resources, even advice to stop using them in the development process.

One. Brundtland definition (SD): “Development which meets the needs of the present generation without compromising the ability of future generation to meet their own need”

Two. FAO definition of (SD): “Sustainable development is the management and conservation of the natural resources base and the orientation of the technological and institutional change in such a manner ask to ensure the attainment and continued satisfaction of human needs for present and future generation”.

Three. Sustainable economic development involves maximizing the net benefits of economic development, subject to maintaining the services and quality of natural resources over time”.

Four. Sustainable economic development refers to the optimal level of interaction between three systems. The biological, the economic and the social- though a dynamic and adaptive process of trade-off”. Sustainable economic development involves maximizing the net benefits of economic development, subject to maintaining the services and quality of national resources over time. Economic development view in an increase in people’s quality of life, particularly the poorest increasing incomes would be a major factor. Advances in knowledge capability and choice lastly advance in civil rights.

Five. Sustainability deals will propensity of system to withstand collapse under stress. It has to do with the robustness of continuing viability of systems.

Six. Sustainability is the ability to maintain productivity, whether as field, farm or nation, in the face of stress or shock.

Seven. Sustainable development based on prevailing patterns of resource use is not even theoretically conceived.. a new definition of sustainable development .. is development that minimizes resource use and the increase in global entropy (entrust). The stress here on rational use of resources and sound trusts all over the world. Environmentalists also want from the economists to pay more attention to ecological and ethical issues.
Eight. The term sustainable development systems that the lessons of ecology can, and should be applied to economic process. It encompasses the ideas in the world conservation strategy, providing an environmental rational through which the claims of development to improve the quality of all life can be challenge and tested. Sociologists stress on the demand on the environment that culturally determined, that means sustaining cultural systems. They argue that the global redistribution of wealth has to occur a condition for sustainable development to become a realistic possibility on global scale.

Nine. Are the institutions, which are used to manage the environment subject to local control, and have they evolved to meet local needs? Is another issue raised by social scientist.

2.2.1 Agricultural and sustainability

The concept of sustainable agriculture

The word “sustainability” is now widely used in development circles. But what does is really mean? According to a dictionary definition, “sustainability refers to “keeping on effort going continuously, the ability to last out and keep from falling”. In the context of agriculture, “sustainability” basically refers to the capacity to remain productive while maintaining the resources base. For example, the technical advisory committee of the consultative Group on International Agricultural Research (TAC/CGIAR, 1988) states:

“Sustainable agriculture is the successful management of resources for agriculture to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources”. However, many people use a wider definition, judging agriculture to be sustainable if it is (After Gips, 1986).

- Ecologically sound, which means that the quality of natural resources is maintained and the vitality of the entire agro ecosystem from humans, crops and animals to soil organisms- is enhanced.
- Economically viable, which means that farmers can produce enough for self-sufficiency and/or income, and gain sufficient returns to warrant the labor and cost involved.
• Socially just, which means that resources and power are distributed in such away that the basic needs of all members of society are met and their rights to land use, adequate capital, technical assistance and market opportunities are assured.

• Humans, who mean that all forms of life (plant, animal, human) are respected.

• Adaptable: which means that rural communities are capable of adjusting to the constantly changing conditions for farming.

2.2.2 Sustainable Food Security

Hunger elicits a very strong and emotional response, particularly when it hits the news. However, attention caught by the steady stream of reports of new and catastrophic famines or drought. Regrettably, the significance and extent of chronic hunger barely qualify as news, make only a marginal impact and are seldom a matter for public debate. Food security is still far too frequently linked to, or even mistaken for, short-term emergency aid measures. Admittedly these too are indispensable because naturally- caused famines and humanitarian disasters triggered by war or environmental disasters (floods, droughts, hurricanes) call for immediate affective counter measures to prevent even greater misery-lasting success in reducing hunger in the world in the long term demands simultaneously that long-term strategies be put in place, prioritizing and focusing on rural development, and putting the people concerned in apposition to secure adequate quantities of quality foodstuffs by their own efforts. This is why rural regions have such great significance. Indeed, as many as 60-70 percent of our partner countries populations live in rural areas. Their livelihoods are predominantly based on farming and related up stream and down streams sectors.

2.2.3 Causes of food insecurity

Food security has three components: adequate food supply stability in availability and access to food by those who need it. Food insecurity can therefore result from destabilizing any or the periods of 1960-1970 and 1970-1980 and 1980-1990 respectively; the least growth being recorded in sub-Saharan Africa. The per capita growth rate in food production was highest in the industrialized market economic when 1.3% was recorded and was least in sub-Saharan Africa with a 1.1%. Current data available indicate that while the total change in the food indexes and in agricultural production were positive for central Eastern and Southern Africa, for all regions the per capita food and agriculture indexes were negative (FAO, 1991). In the face of decreasing per capita food production and food indices, sub-Saharan Africa is suffering from chronic food insecurity. The situation is aggravated by transitory food insecurity of various degrees caused by environmental hazards and the civil strife.

As we hold this symposium, hundred of people are dying everyday in Africa due to hunger, the most pronounced case being that of Somalia. Food insecurity has long term and serious implications for development in adequate diet lead to increased vulnerability to diseases and pests. Reduce strength work; curtail vigor and alertness of mind. All of which affect the productivity of the population. Investing in food security is investing inhuman capital, which is paramount for development.

2.3 The faces of food insecurity in the Sudan
There are five faces of food insecurity in the Sudan, Mortimer attributes food shortage to one or more of the following causes:

1/ Breakdown of primary production:

In Sudan drought is the main reason causing the breakdown of the primary production system, in addition to pests, fires, and other hazards the breakdown of the primary production system, result in major loss of output.

2/The breakdown of food procurement system:

It means a breakdown in access to food for a large proportion of the population, through the loss of direct production, or loss of market purchasing power, of failure of non-market distribution system or the combination of all three.

3/ Pauperization or Regressive Redistribution of wealth:

In situation of food scarcity, especially during famine times, there occurs a redistribution of wealth (productive assets, property and cash), from the poor to the rich.

4/ Environmental Degradation:

Drought and desertification are the most serious environmental problem in the Sudan. All other signs of environmental degradation, such as soil degradation, loss of bio-diversity and climate change, are highly related to drought and desertification.

5/ Malthusian Demography:

Food insecurity, particularly famines cause. A major increase in mortality either from starvation or from reduced resistance to diseases.

2.3.1 Dimensions of food insecurity

Beyond the calorie deficit per se, a broad concept of food insecurity also encompasses malnutrition and under nutrition as a consequence of wide-scale nutrient deficits, generally combined with health problems, such as vitamin and mineral deficiencies-what is known as “hidden hunger”. They dimension of food (in) security are:

* In the two decades leading up to the early 1990s, the share of the population of the developing world affected by hunger fell from 36 to 20 percent. That still leaves around 840 million people suffering from a serious deficit of staple foods (calories), i.e. going hungry.

* Vitamin A deficiency, which can cause blindness, is a problem in at least 60 countries and affects some 40 million children. An estimated 29 percent of the world’s populations suffer from iodine deficiency. Nearly 2 billion people have iron deficiencies; women are partially affected.

* The figure for undernourished (under weight) children stands at around 190 million, and is falling very slowly. Yet nutritional problems are considered to be associated with some 55 percent of cases of child mortality in those countries. Approximately half of all undernourished children live in southern Asia and sub-Saharan Africa.

* It remains the case that the bulk of the world’s hungry live in rural areas but have no land of their own, or else-particularly in Africa-live
on tiny, low-yield smallholdings with limited access to markets and yield-boosting technology.

- So for this decade famines have been less frequent than in the 1970s and 1980s and were concentrated chiefly in sub-Saharan Africa. (Braun Joachim von 1997)

2.3.2 Dimension and characterize of poverty and food insecurity

Any meaningful intervention to combat poverty and food insecurity must start with a precise identification of which the poor are, how many they are, and where they are located. In addition to general indications of poverty and food insecurity at the world, regional and country level, disaggregated information on the incidence of poverty and vulnerability is required both for proper policy design and for adequately targeted intervention. This entails identification of different categories of the poor and malnourished at the local and household levels, by sector of economic activity.

Occupational characteristics, social status by age and gender (so as to define as precisely as possible the extent of the feminization of poverty). Special attention should give to identification of the most vulnerable persons with in each category. The lack of the consistent time series data on changes in poverty and those who “exit” has also been pointed out. Given recent broader perceptions of what contributes to poverty. Other indications of poverty and deprivation should also be monitored in addition to those related to income: human development (or lack of it) access to education, social services and several of empowerment and participation in a dignified social life. The is necessary in order to capture the multifaceted aspects of what makes up sustainable livelihoods, and consequently lay the basis for prioritization needs and more effective intervention for poverty alleviation and livelihood improvement: these are by now well accepted even obvious, considerations in the poverty discourse, but one thing is to state them in principle, and an entirely different thing is to investigate, describe and quantify concretely where and to what extent such conditions prevail in

2.3.3 History of agricultural financial in Sudan

Agricultural finance in Sudan has evolved over many phases or periods that could be summarized as follows:

One. Before 1930 the traditional source of finance was the only source of agricultural credit, mainly it is the sheil system, which is practical by merchants and landowners in rural areas.

The sheil system was introduced in Sudan at time of imposition of taxes by the colonial government. Because of the pressing needs for cash, traders are willing to lend to peasants as well as other farmers in return for their crop at harvest. However, the price of the crop at time of harvest exceeds the price at which the crop was sold in advance by a big margin. This margin is taken to reflect the rate of interest. Loan payment in the sheil system was automatically
postponed to the next season, when farmers could not reply due to crop foliate or low productivity.

In the shell system farmers are not obliged to offer a tangible security. The security here is the social relationship between farmers and the shell merchants, moneylenders have a simple operation, the loans are often made on the spot; sometime orally.

There are many factors, which lead farmers to undertake the shell system; the poverty and the general low level of living load the farmers to depend on the shell system so as to cover their agricultural expenses. The absence of governmental institution and cooperatives during this period encouraged due to some security and repayment problems that closely associated with the formal sources of credit.

(b) The cooperative societies (1949-1959) are an important element for reaching small farmers in rural areas, and usually have an apex suture layered to the local or primary level. Local cooperatives are often captured by the well to do and small farmers have difficulty in obtaining funds in general.

The proficiency and e.g. reflect the conditions prevailing in the country as whole. The quality with which cooperatives operate he encounter serious problems in countries that have an acute shortage of skilled Manpower like Sudan. Nevertheless, cooperatives probably provide one of the most promising vehicles for reaching large numbers of small holders and rural producers and act as a catalyst in the process of agricultural (Khalid, 1999)

2.4 The Role of Micro-finance for food Security, and rural poverty alleviation.

In most rural areas of developing countries, achieving household food security remains a critical objective of rural development. This can be reached by increasing agricultural productivity and off-farm income and by improving the ability of households to stabilize their income and food purchasing power.

2.4.1. Linking financial services with household security

Zeller et al. (1997) identify three pathways through which access to financial services (or lack there of) may influence food security. The consideration of these pathways provides a framework
for identifying institutional arrangements that address the diverse demand for savings, credit, and insurance services by the poor, for evaluation them, and for comparing their costs, and benefits which alternative policy measures aim at improving food security.

Pathway I: Improving income generation

The measured effects of access to credit are two folds. First additional capital can be temporarily used to enhance the level of the households productive human and physical capital. This is the traditional argument for the provision of rural credit.

Second, apart from this direct effect on factor income, access to credit and to saving services suitable for precautionary savings will increase the risk-bearing capacity of the household (Swanson and Kotural, 1990).

Pathway II: Decreasing costs for self-insurance through more cost-efficient assets and liabilities of household

Improved access to financial services is expected to reduce the holding of assets with lower risk-adjustment returns, such as traditional forms of savings like jewelry, stable food, or livestock which is expected to various risks (theft, loss, or disease). There are likely to is partially substituted if savings opportunities with higher risk-adjusted return arise.

Pathway III: “Consumption” credit

Households attempt to stabilize their consumption by adjusting their disposable income. If factor income is insufficient because of shocks, various traditional consumption stabilization techniques are employed to generate non-factor income such as derived from the depletion of shocks, the sale of assets, the call for gifts from relatives and friends, and so forth.

Factor and non-factor constitute total disposable income for consumption and investment.

2.4.2 The role of rural finance for improving household food security

Food security, at the household level is defined as access by all people at all times to food needed for healthy life (Von Braun et al., 1992). There are many potential policy instruments for improving household food security. In generally, packages combining arrangees of policy instruments are more effective in improving food security than the reliance on few sector-specific, single policy instruments. Given the determinants of the household’s food security, the available policy instrument can be systemized into policies that:

1. Aim to increase the households income
2. Stabilize and/or lower food prices or
3. Improve the households’ access to inter-temporal market (Zeller et al., 1997).
2.4.3 Small scale loans and credit guaranties for rural areas

According to Hitzemann (1996), support to off-farm source of growing in importance particularly in rural areas. However, providing long-term financial services which focuses on the needs of the target group still remains a largely unresolved problem. Such financial services cannot be subsidized indefinitely and only make sense when combined with advisory services which are often man power- and cost intensive.

Using a case study from the informal sector in Malawi, this article describes the major requirement for a practicable “saving and credit support” concept.

“Saving and credit support” project began as small spin-off to a major rural regional development project: in remote rural development centers, female micro-entrepreneurs were to be assisted in developing off-farm income opportunities. Experiments were tried with group organization, appropriate technologies (soap, roofing, tile and oil production, bakeries, etc..) and individual credits made available through the project. However, there was a clear tendency for these so-called “income-creating measure” not to be assessed on the basis of economic criteria but rather just to be subsidized. As with many other initiatives of this kind, it soon became apparent that no sustainable effects were being achieved because the target group did not develop any initiative and responsibility of its own. The sponsors and the project team largely took decisions.

On the basis of these first experiences, a process of careful reflection, analysis, re-planning and step by step implementation, led, in time, to the development of national support concept which focused on the needs of the people concerned and was less determined by the interests of the project sponsors or donors.

2.4.4 “Credit group” gains access to the formal banking sector

Successful businesswomen who have recognized that non-business expenditure can only be paid for from net profit and who in time have been able to increase their savings capital (individual saving account plus the group account) from “credit group” at the next level of support.

In the credit groups, ten women at a time decide of their own initiative to form group, save a higher minimum sum in a joint bank account and may apply for ten times the amount of their savings as alone over six months. But now each borrower only needs one guarantor who-just like with the saving and credit clubs must be member of the same credit group and may not receive a loan at the same time as the member for which she acts as guarantor. Once again, market interest rates are charged and interest rates are not subsidized.

The commercial bank of Malawi pays this loan to the group, which in turn divides it amongst half the women in response to their applications. Loan applications are based on simple feasibility studies, which have previously been examined and approved by the group. And are examined once more by the bank in line with its own business procedure. The bank treats the group like only other individual borrower, but has the security that the credit group receives business management training and back-up support from experienced field advisor and especially advisory organization.

2.4.5 Potential and limits of some formal and informal finance institution
Formal and informal institutions, so the basic theory, can complement one another in their supply of customers orientated financial services and in the transformation of risks. Terms and some size of the financial transaction—without the formal sector however the transformation potential of rural financial markets is very limited.

Commercial banks in developing countries: operate mostly in urban centers and concentrated on profitable core areas, especially on large-scale lending and trade financing.

State development banks: were widely used from the sixties rights up to the eighties as distribution mechanisms for credit lines with subsidized interest rate to selected target groups, which were shunned by profit oriented commercial banks. Institutional witnesses, low efficiency failure to reach target groups and poor repayment rates have been now led to a collapse of many development banks and to a conceptional version to these kind of institution by the foreign and donors.

Non-governmental Organizations (NGOs) have been very active in the last ten years in the supply of the credit for small micro entrepreneurs. They are making an importance contribution to developing innovative technologies. Their strengths are primarily, their flexible procedure and a close approximately to target groups. At the same time they are concentrated on urban and per-urban centers as well as on short term lending which is unobtainable or else unsuited, for small holder household and, in particular, for agricultural purposes.

Money lender

Frequently play ambivalent role as providers of financial services. They provide access to loan, which are for the most part very short terms, flexible and also available for high-risk purposes. Such quicker access to liquid resources (e.g. in the event of illness) is possible for the most part without furnishing real security. The very high interest rates do indeed reflect the increased risk of the credit guaranteed but, as the same can be an expression of a monopolistic market situation.

The volume of the amounts that can be lent out is, as a rule, very limited,

Pawnbrokers grant loans against real security such as gold, jewelry and household articles. Usually the customers receive 40-50% of the value of the objective of the loan. If the loan plus interest is repaid the customer receives the Pawn object bank. Pawnbrokers are relatively short terms facility for making non-liquid assets, without them having to be sold. This form of credit is insufficient for investment purposes.

Funding neighbors and relative are an easily accessible source of finance, as they tend to be granted purely on the basis of the judgment of character and the security of social structures. The basis of this financial “institutions” is the geographical and social proximity between lender and borrower and associated case of control and incentive for repayment. Of course the amount of capital obtainable is as a rule very limited and, in cases of need not accessible at all or only partially. On the other hand here, are the advantages of flexible arrangement, and low
transaction cost for both partners, friends, neighbors, and relatives especially and other social groups play an important role in view of the lack of formal insurance systems in most cases.

2.4.6 Credit inputs

1. Far more attention should be given to preparing farmers before they are introduced to institutional credit. First, their cultivation methods can almost always be improved and minor investment in water control or land shopping may improve them further. This is first step in improving confidence and competence. Second, many “not all” improved seeds will raise yield over without chemical fertilizer, particularly if organic are available. Third, it may pay to give the farmer enough seeds and fertilizer for quarter and acre, as a first year trial and demonstration on his own land. If his trail succeeds, a credit loan could follow in the following year.

2. Any decision as to the size and scope of an institutional credit programme in a particular area should be base on a careful consideration of the extent of already existing rural financial markets. The aim should be the supplement other source of finance, not displace them or replicate them unnecessary at high a demonstrative cost.

3. If crop season credit is given for crops marketed through a single buying channel (crop board, milk collection scheme, self contained production and marketing project, monopoly technical commodities processing unit) credit dues can be deducted from the market price paid. The greater difficulty arises where crops are mainly consumed or sold in open markets to private buyers, and this arises particularly with stable subsistence crops and minor crops. Cooperative handling such crops are in particularly difficulty, and, in general, cooperative, which do not have monopoly purchase, are unsatisfactory credit organizations.

4. Political anxiety about implementing sanctions on defaulter lead to rapid deterioration in recovery of credit debts. Quick and resolute action against defaulters is essential.

5. There is considerable controversy on the desirable rates of interest to be charged on short-term loans. Many economists believe that a realistic rate for borrowing in the rural economy should be charged in order to cover the administrative costs entailed by any lending programme aimed at providing an expanding service to a large number of small borrowers. On a loan of $20 for inputs, for 6 months, interest at 15 percent amounts to only 1.50, and at 20 percent to only $2. Many people would say that the extra $1.50 or $2 is not critical to the farmer’s decision to take, or to repay, the loan. It is, however, critical to the increased effectiveness and breadth of coverage, of the credit programme as a whole.

6. In general, institutional and subsidized crop season credit without an automatic recovery system at the marketing point is expensive both in overdue and administrative costs. Moreover, it is apt to burden extension staff, both in time and in the good will farmers, when they are used for loan recovery, and to make local representative committees the enemy rather than the friend and instrument of the farmers if they are used for this purpose.
7. Different considerations arise for larger medium-term credit for investment (e.g. wells and pumps, and machinery). In most cases the benefits are assured, and the loan is normally secured on land or real assets. In general, medium-term lending is more satisfactory, less risky and more productive. Because a well dug will be they're next year, but a season’s crop failure leaves neither cash nor asset behind it.

8. Savings: if it is believed, with good reason, that finance for seasonal inputs, is essential, and that it will not be forth coming form family resources, then savings schemes have great importance, such schemes should always accompany short-term credit system; they may be through many forms of savings clubs or societies, some traditional and self-monitory. They have the advantage that savings can legitimately be used for consumption needs and to tide over pre-harvest periods when cash is very short. Savings have been greatly under emphasized save in a few projects. A strong development of savings could go far to eliminate short-term crop loans, or to provide security for them.

9. Inputs: crop season credit is, of course, linked to input of seed, fertilizer, chemical sprays etc. In the early stage of development there may not be an adequate service of merchants and stockiest at local level, so that governmental organization is needed. Unfortunately chemical fertilizer in particular has often been in short supply. This is likely to be disastrous for the small farmers, more disastrous if government subsidies fertilizer when supply is short and prices high; controls are almost invariably infective in this situation. (Hunter 1998)

2.5 The right to food

According to (Bosien 2001) the UN committee’s general comment defines the right to adequate food is realized when every man, women and child, alone or in community with others, has physical and economic access at all time to adequate food or means for its procurement. The right to food is primarily seen as right of access, even if the dimension of supply is not completely ignored. “Fundamentally states the comment” the roots of the problem of hunger and malnutrition are not of food but lack of access to available food.

This perspective contrasts with positions in the food security debate by which faith has always been placed solely in increasing production, without giving though to issues of distribution. But 20% more food per head available today than 30 years ago, as the FAO recently reported. And yet some 800 million people still chronically undernourished consideration of the average and hence abstract theoretical national or global food supply does not go far enough. For human rights perspective, the focus is not on statistical average. But on groups who are too vulnerable to exercise their basic rights. For many particularly vulnerable groups, access to food is first and foremost a problem of access to basic food resources. Land less and other peasant families indigenous communities, fishing families and within these groups the women and girls in particular, are often marginalised and discriminated against over access to and ownership of natural resources. In line with the fundamental human rights principles of non-discrimination, governments, according to the UN committee general comment, must give, guarantees of full and equal access to economic resources, particularly for women. As well as inheritance and land
ownership right, this also encompasses the right to a minimum wage that covers a family’s basic needs.

2.5.1 Taking hunger with human rights

People cannot live without food; that goes without saying. So why demand a ‘right to food’ when no one denies that we must have food to eat? Is it not enough to claim this as a basic need that must be met? Is it not enough to work on the moral assumption that those will share it with those who have nothing evidently.

The history of human rights development is a strange process in which self-evident needs must be formulated as rights because they are. Constantly disrespected. The right to physical integrity had to be invented because of historical and present-day practices of torture and repression. The right to food was formulated and must be asserted simply because hunger and malnutrition still exist-in a world which, statistically, has enough for all. It is critical to this process that the right to food is not used as a “moral springboard” from which to progress to discussion particular strategies for feeding the world. Neither is the right is the right to food a worthy but vague political goal that can be achieved at will by any method. The right to food is a human right, to which all states that have aided to UN covenant on economic, social and cultural rights are committed under international law. (Bosien 2001)

2.5.2 Poverty alleviation and food security

According to (Kotschi2001) the past twenty years are characterized by important milestones towards an ecologically- oriented agricultural development the Southern Hemisphere. Today, sustainable agriculture and organic farming, both are propagated as the most promising strategies to alleviate poverty by increasing agricultural production and at the same time, using natural resources in a regenerative way.

Nevertheless, our natural resources are deteriorating in an alarming speed and the gab between population growth and food production is widening.
Within the last two decades, various initiatives have striven towards an ecological agriculture “eco-farming” e-development” low external input agriculture, site appropriate agriculture and many other concepts can be brought together under the umbrella of sustainable agriculture. All of them were confounded in the content of agricultural or rural development in the south, and have mainly been promoted by governmental or non-governmental donor organizations. They aim to achieve high productivity despite low-external input conditions and at the same time, to maintain or reestablish a balanced ecosystem.

2.6 access of the rural poor to resources

2.6.1 Land

According to (Gaihaa1993) the relationships between rural poverty and access to land is complex. Many factors are involved, including differences in land quality, the availability of complementary inputs, access to credit and markets and opportunity for self- farm employment.

What is the way out of the poverty? The new development paradigm maintains that the answer lies in increasing the productivity and income of the rural poor, which will in turn contribute to broad base, economy-wide and environmental sustainable growth. The task of poverty alleviation cannot be approached in isolation, detached from the mainstream of development, the rural poor must be integrated with it and place at center stage.

The rural poor can contribute to environmentally sustainable growth if they are allowed access to productive resources, the most important of which is land. It is some times soil that their access to land can not easily by improved it because in most countries it is a sensitive political issue. (History) suggest that even where reform has been instituted, it is margin perhaps it is possible to introduce programme providing credit for the poor, because these do not threaten the elite by arousing their fear of losing control over land (Getubig, 1991)). Attention then focuses on labour, with poor ore said to have in abundance, and escape from the poverty trap is sought primarily by improving productivity of the labour of the rural poor. While this is a move in the right direction, there is a limit to how much labour productivity can be raised without simultaneously increasing the access of the poor to land and or capital.

At the present level of utilization the return to the labour both self employed and waged is relatively low almost everywhere. To change this, there is a need to improve efficiency of the operation of the land, labour and capital market so that the rural poor can take advantages of new opportunities. The challenge is two-fold: new jobs have to be created, on-farm and off-farm and wages must be raised. The letter will require capital and an increase in the productivity of labour through the development of people’s, basic skills and micro-management capacity, commons urate with demand. It will also require an improvement in the productivity of land by means of new technology and services support and increased investment in infrastructure equipment and off- farm activities.

Finally, it will be necessary to mobilize domestic savings for investment in rural areas. The rural poor themselves can do save, in both financial and physical assets, and can save more if profitable investment opportunities and incentive goods are made available to them, and if they...
are given better access to institutional credit. The rural poor are often rich in traditional knowledge, and wisdom. It is necessary to create opportunities and, capital, for the optimal use of this knowledge and of their entrepreneurial

Capacity risk. Taking is no monopoly of the rich. The rural poor can and do take risks, but the odds should not be loaded against them. What they need is the vital support to use the available land, labor and capital to make maximum feasible contribution to production, income and capital accumulation.

2.6.2 Infrastructure and social services

The rural poor need access not only to land, infrastructure, technology and social services opportunities to their specific need are n important.

Investments in irrigation, roads, and communication have contributed to the growth of agricultural output and the reduction of rural poverty in Indonesia and Malaysia while China, India and Pakistan have benefit from improvement in irrigation. What are needed are forms of infrastructure, such as rural link roads, which directly support access of small holders to input and markets. Infrastructure will not, however, raise crop yields without the complementary development of appropriate technology, and investment in social services, education, health, water, sanitation and nutrition must ensure the improved access of the rural poor. This investment is not only improve their quality of life, but also contribute to productivity (Clayton 1993)

2.6.3 Irrigation development for alleviation for rural poverty

Irrigation is critical in area where farmers face uncertainty in the supply of water for crop production. Farmer’s capacity to provide the water requirements of different crops has been enhanced by technical advances in water storage and by pumping water from underground reservoirs. With irrigation, two or perhaps three crops may grow where previously only one, or even non-grew. Irrigation can alleviate poverty by increasing and stabilizing agriculture production income.

Irrigation construction generates jobs, and there are after a reliable water supply provided employment by increasing cropping intensity and area cultivation. (Baeghouti et al., 1990)

2.6.4 Technology and farming system for the rural poor

The specific needs of small holders producing traditional food crops are usually ignored. The development of, and access to, appropriate technology are the most effective means of raising productivity of the land. Labour and capital of low resource farmers.

In most of the developing world, small farmers are involved in highly complex and diverse system of mixed farming and multiple cropping. While this time tested technologies represent risk-averting survival strategies, they normally result in production levels that meet only the basic substances requirements of small farmers.
New technology needs to be introduced if the productivity of small holders is to improve substantially and make a significant impact on agricultural output and income. However, because of the high degree of instability which often characterizes their farming system, small farmers are averse to the risk of using inputs intensive technology which requires large cash outlay and labour inputs, unless they are assured of increases in their income (Abbas et al).

2.6.5 Developing technological system directed to the rural poor

According to (Swanaon et al., 2001) it is found that by adopting flexible approach to financial and policy support, national research system can be reoriented to ward developing technology suitable for small holders. For example in Thailand, the FAO Financial Project switched the emphasis of research from irrigated rice to rain fed areas. In Botswana, where a well-developed natural agricultural research system already exists, IFAD’s support succeeded in encouraging national research to develop a sound technological package for arid and semi-arid region. These was achieving by constant interaction with scientist working in Botswana, whose substantial feedback from project experience enable them to make appropriate change to the design of technological package for farmers. Technology may not be effective unless project design adequately assesses for the capacity of research institution to react to changing conditions, particularly dynamic demographic pattern and the deteriorating resources based of the rural poor in developing countries. The applied aspect of research must not be neglected. Adaptive trails especially on farm with small holders should be given a high priority.

Otherwise, very little good, if any, will come of results achieved by laboratories and research stations. The critical importance of on-farm trails is that demonstration of results in farming condition is a key to adoption of new technology. The importance of good quality seeds cannot be over emphasized. This has to be combined with provision of credit in kind, which has been found to encourage. Low resource farmers to adopt new technologies therefore, technology packages support by credit should be divisible, so as not to place poorer farmers at a disadvantages.

2.6.6 Technology and farmer system and crop diversification

Appropriate technology and the development of farming system enable crops to be diversified and the productivity of traditional crop to be improved. Crop diversification is important, irrespective of whether small holders are producing internationally-trade cereal or traditional food crop. In many instances, where resource such as land and capital are limited, diversification offers the only means of moving into high - value crops and racing household income while still assuring food for the household. However, an increase in nominal income may be out weighed by price increase of those food and non-food items which household
normally buy in the market (Von Braun and Kennedy, 1986). There is also the impact of commercialization on household nutrition. Crop diversification has critical role to play in dealing with menace of drug crop production, which in many areas is dominant in the farming system of rural poor household. (Roader Robert 1989).

2.6.7 Traditional crop development

According to (Mellor and Johnw, 1999) the income and nutritional status of poor rural household can be improved by developing improved varieties of, or better production techniques for traditional food crops. Traditional crops such as cassava, cowpeas, sorghum, millet, wheat, planting bananas and sweet potatoes are the cores of the farming systems of the rural poor in marginal areas. The crops are also major sources of rural employment, especially for women. There are droughts resistant and can survive in poor soil condition. Crops stores well in ground for up to three years providing food security in time of drought.

The emphasis should be on improving the productivity, processing and marketing of traditional crops in order to promote food security for poor households.

Policy and institutional changes must also estimate supply and demand so as to promote the transition from subsistence to surplus production.

2.6.8 Improving the access of rural poor to transportation, communication and social services

2.6.8.1 Transport and communication

Transport, communication and agricultural development are in inextricably liked. One simplistic view is that if you build a road or a railway through a cultivable area, you promote production and marketing. The alleviation of rural poverty through improvement of agricultural will call for better integration of agricultural production with the market, which cannot happen without roads and communications. Without better access to roads it is in conceivable that the rural poor, particularly women will be able to take advantages of new opportunity offered by technological development and market expansion.

Rural roads can also consolidate the links between agricultural and non-agricultural activities within the rural areas and between rural and urban areas.

Rural roads must of course, include feeder road without which many benefits will remain unrealized, even carrying head loads to the nearby market-place may be constrained by lack of feeder road.()
incorporate, as integral elements: easily accessible basic education facilities for the rural poor; development of health care infrastructure and man power with assured access of rural poor, prevention and control of communicable disease. Improvements of child hood feeding practices care of mother and child and improve water supplies and sanitation. (FAO 1995)

2.6.9 Access to resource market

According to (Alamgir and Elhaut 1994) Land is the core asset of the rural economy in which the majority of the world’s poor live. However, access to the productive resources is thwarted in order to harness the productivity capacities of the rural poor it becomes an important strategy element to be able to address these distortion. In the short to medium term a realistic and significant strategy is based on implementing the existing spectrum of reform that include:

- The regularization of land titles.
- The rationalization of tenure condition
- The clarification of the status of squatters is it on public, communal, pastures, private or other land.

In order to assure the poor of access to productive resources, their access to savings facilities and to investment and working capital, within a sustainable framework for financial intermediation must also be assured. The numbers of overriding principles for financial intermediation need to be respected. Emphasis on saving at the household level is a pre- requisite for sustainable financial intermediation. This enables financial institutions to develop a relationship with client and provides an additional risk diversification strategy for households to deal with unexpected future crises and loan repayments. Local resources, which are generally low cost, are an ideal basis for credit programme. External resources best fulfill the role of growth supplement to local resources, enhancing the investment production, income, and savings an reinvestment cycle.

2.6.10 Access to labour, market and technology

It is unlikely that even under optimal development scenarios, all potential productive people could gain access to scarce land and capital resources. Those who are excluded will need free and informed access to efficient labour markets in order to bring them into the process of growth. It is not easy to address the inequitable terms and conditions prevailing in rural labour markets which are effected by a highly degree of oligopoly at the hands of larger economic actors, high degree of segmentation, and by significant regional seasonal and annual fluctuations. Women are particularly handicapped in such on inefficient rural labour market environment in order to protect to the poor farm such market inefficiencies, efforts must be made to enhance their bargaining power and productivity.

Upgrading their skills will enable the rural poor to better access to labour markets. This will require a comprehensive “social” investment package composed of family planning, health, nutrition, education and training, sanitation and housing. Education, particularly vocational education and training and retraining keys to the environment of the human capital of the rural poor who must graduate from unskilled to semi-skilled employment.(FAO 1990)
2.7 Formal and informal financial services providers in rural financial markets

2.7.1 Characteristics of rural financial market

Rural financial markets are characterized by dualistic structure a limited availability of collateral covariant risks and seasonal fluctuations in the supply and demand of financial services as well as high transaction costs. There are different views on the coexistence of formal and informal supplies of financial services in rural financial markets. The informal financial sector could be seen as answer to the shortcoming of formal supplies and extensive government intervention. The elimination of these shortcomings would then lead to a gradual this appearance of the informal providers. The experience in the course of deregulation of the financial market has shown, however, that the informal financial sector is continuing to exist even in the present of a growing formal financial market.

2.8. “Saving first versus credit first”

2.8.1 The importance of mobilizing saving for setting up rural financial system

Following the failure of agricultural development banks with their subsidized and dirigisme credit programme “micro finance industry” has been booming since the beginning of the nineties. Its aim is to provide financial services on a more broadly effective and sustainable basis, especially to the poorer sections of the population.

This change in the paradigms in the institutional sector was not however, accompanied by a widening and differentiation of the supply of financial service for poor domestic enterprises. The mobilization of small and even very small savings on the other hand is still the “forgotten half” of the rural financial cycle. How can the income of the rural population be raised on a sustainable basis, and with it food security in rural areas which are hit particularly hard by poverty? This question is still as acute today as it was thirty years ago. The development policy debate of the last decade has regarded innovative production methods and the use of better quality production inputs as important precondition for increasing agricultural production and hence rural income. But how can small holders enterprises finance, these, mostly expensive, production methods? For along time many donors sow the solution to this problem is improved access to especially subsidized loans. The negative outcome of the subsidies agricultural programme such as rent seeking high credit losses and the lack of sustainability have in the mean time, however, been widely a knowledge worldwide (Adams et al., 1994, Meyer et al., 1996, world Bank, 1993, Yaron, 1992).

The failure of these models brought about a rethinking in the eighties among international donors, government and financial institutions in the partner countries.
Because of their dependence on agriculture rural households are exposed to particular risks and are subject, to wide fluctuations in income. Efficient financial management in therefore very important for these households. Here savings and credit are tow sides of the same coin: credit can be looked upon as “an advance payment on future savings” because the loan repayment is to be made out of surplus future income, that is to say, out of saving strengthen self-financing capacity and an thereby reduce the demand for expensive credit (Gadway, 1996). The reasons are manifold why household forego immediate consumption in favor of savings (Robinson, 1994).

- **Insurance motives**: savings are formal in order to have money available in an emergency (e.g. illness, accident, invalidity, sudden loss of income).
- **Future consumption and investment**: savings help to finance consumer goods and capital goods planned for the long term.
- **Accessibility and love of liquidity**: short-term access to savings is of particular importance to the rural poor who need to protect themselves against production risks and other emergencies.
- **Security of savings deposits**: savings should be safe from the grasp of others.
- **Profitability**: a positive real interest rate on savings accounts can have a positive effect on mobilizing savings. In as pertaining the profitability of different forms of savings, transaction costs should also be taken into account.
- **Reciprocity**: savings deposits are fictionalized in order to receive access to other services. (World bank)

2.8.3 Mobilizing savings for micro finance institutions

Savings service can be positive effects for micro finance institutions. Here distinction should essentially be made between (CGAP, 1998).

- **Efficiency gains through the synergy effects between various financial services**, which, are demanded, from one and the same group. Generally the relationship between financial institutions and customer marked by a one-sided fellow of information. This phenomenon is particularly problematical in the credit business, as it leads to risks known under the term borrower hazard: the lender does not know under the term moral hazard: The lender does not know whether the borrower, during the period of the credit, behaving in a way that will increase the risk of possible credit loss. The lending financial institution is therefore anxious to compile as much information as possible about the borrower in order to reduce these risks.
- **Greater customer orientation and improved quality of financial services**: In most developing countries there is an excess demand for small/very small loans in contrast, savers—even very small savers—have several investment choices.
• **Improvement in management skills:** savers with only hold savings accounts in financial institutions, which appear safe and trustworthy to them.

• **Independence from donor money or other state subsidies on concessionary terms:** MFIS, as traditional specialized lending institutions are as a rule subsidies by international donors or government authorities. However, the superficial advantage of cheap refinancing is frequently overcompensating for the many disadvantages in order to obtain access to subsidies, lengthy application processes have to be put up with more often than not. This is time consuming and expensive. (Robinson 1996)

2.9 The measurement of rural poverty of deprivation

2.9.1 National level indices of rural poverty

The four new indices of rural poverty are briefly described:

1. **Food security index (FSI):** gives an indication of national, composite food security. It combines relevant food production and consumption variables.

2. **The integrated poverty index (IPI):** build on the pioneering contribution of Sen (1976) in this field is calculated by combining the percentage of the population below the poverty line (head-count measure) with income gap ratio, the distribution of income among the poor and the annual rate of growth of GNP per capita.

3. **The basic needs index (BNI):** including the human development index and the physical quality of life index (Morris, 1979). It used to indicate the social development of rural areas. It incorporates data on education and health.

4. **Household level Index of rural poverty:** it is at the household level that the objective criteria of outside experts must be reconciled with poor people’s own subjective percentage perception of their poverty in all aspects.

2.9.2 Poverty in household

The poverty of rural household can be measured by material deprivation isolation, alienation, dependence, lack of participation and freedom of choice and lack of assets, vulnerability and insecurity.

One. Material deprivation:

Two. Isolation: physical access to roads and mass communication is important for rural household and is often in adequate even in relatively advanced developing country.

Three. Alienation: functional and educational aggravate household poverty.

Four. Domination and dependence: many agricultural families are tenants and sharecroppers, dominated by and dependent on rural elide.

Five. Lack of participation: the rural poor seldom belong to formal groups or organizations, and seldom participate in decision involving their own well-being.

Six. Lack of assets: in the absence of reliable data on income and consumption, the poverty of rural households can be determined by their assets holdings.
Seven. Vulnerability: the rural poor are particularly vulnerable to natural factors such as stress at times of the year when food is scarce.

Eight. Insecurity: the poverty of the rural household may be accentuated by its physical, social and economic insecurity, a situation confronting many minorities; the process of development itself can render the position of the poor rural household more insecurity.

Nine. Lack of decision-making power and freedom of choice: in production, consumption, employment and socio-political representation is reflected in the absence of flexibility and the reduced opportunities open to the rural poor.

2.9.3 Type of rural poverty

Five types of rural poverty are identified his. Material deprivation and alienation cause interstitial poverty, or pocket of poverty surrounded by power, affluence and ownership of assets. This phenomenon makes it difficult to target development benefits at the rural poor without their being pre-empted by the non-poor.

Material deprivation can combine with isolation and alienation to lead to peripheral poverty, which is found in marginal areas. Material deprivation arising from population pressure and limits on resources will breed alienation and over crowding poverty.

Vulnerability to natural climates (e.g. drought) labour displacement and insecurity produces traumatic or sporadic poverty, which can be transitory but often ends up being endemic. Isolation, alienation, technological deprivation, dependence and lack of asset are also signs of endemic poverty.

2.9.4 types of rural poverty in Sudan

1. Endemic traumatic poverty: vulnerability to natural climatic (e.g. drought), isolation, alienation, labour displacement, insecurity produces, technological deprivation, dependence and lack of assets.

2. Peripheral traumatic poverty: causes by material deprivation can combine with isolation, alienation, vulnerability to natural climates insecurity produces and labour displacement.

3. Over crowding/endemic: causes by material deprivation arising from population pressure and limits on resources will breed alienation, isolation, and technological deprivation.

4. Endemic poverty: causing by isolation, alienation, technological deprivation, dependence and lack of assets.

2.9.4.1 location of poor in Sudan

1. Widely distributed but mostly,
2. Concentrated in the Southern,
3. Western regions of Darfur and Kordofan and
4. All over the country.

Who are the poor?

Small skill cultivation

1. Small-scale cultivation
2. Nomadic pastoralists
3. Agro-pastoralists
4. Household headed by women

**Dominant process**
- Dualism
- Population pressure
- Poor natural resources base and degradation of the environment
- Natural cycle and disasters
- Domestic policy biases
- Cultural and ethnic biases
- Political conflicts and civil strife
- Exploitative and intermediation
- Gender biases
- International process

2.9.4.2 Consequences of poverty in Sudan

Poverty inflicts a negative impact in both the environment and the process of human development due to diverse physical and cultural set up of Sudan. The impact of poverty in Sudanese population vary from one region to another

2.9.4.3 The characteristics situation of the rural poor in the Sudan

Sudan is when of high level of illiteracy rate, high disease incidence, high infant mortality rates, short life expectancy, lack of access to basic services, low per capita income and conflicts over natural resources (water and grazing land).

2.9.5 Poverty, food security and agricultural development

Poverty, man nutrition, diseases and lack of basic education create a vicious circle in which nearly one billion people are trapped. More than two-three of the world poor, are concentrated in south Asia and Sub Sahara Africa. Poverty remains a predominantly rural phenomenon as much as so 80% of the poor in many African and Asian state and 50% in Latin America in rural areas. Projection for the next 25 year suggest that this poverty potential called at a further requirement of 400 million tons of grain to the estimated market demand of the developing world while 30 years experience of economic cooperation with developing countries gives little cause of optimizing. And despite the fact that political instability, social and ethnic conflict, and civil war and diverting a growing share of the resources needed for development toward short-term crisis management and disaster relief, when realists scenario does remain.

For their part, the developing country must finally create the right political institutional, social, economic and sectoral conditions for abroad-based development process in which promotion and, strengthen of human resources has to priority, self reliance, private initiative take economic centers stages and economic growth secure employment and abroad distribution
of income. That would not only create the preconditions for an entirely natural counter balance. To the crushing problem of population growth, but would also enable the development process to be greater real human needs and to create conditions in which investment and technological progress could take root and aid grow into self help. That is the only way to bring agriculture as the largest and most important private enterprises sector, up to speed.

More particularly, we would need to encourage development on two fronts:

1- To favor a broader product base reverting to move traditional cereals and root crops, even if there is strong shift in consumption habit toward high value food such as rice, wheat and dura.

2- To develop non-land using production in per urban and urban areas.

2.9.6 Poverty and income distribution

Poverty studies have long recognized the role of assets in determining the capability of individuals or households to construct livelihood that are above the line, the measurement of poverty through up some critical issue in livelihood strategy context. One of these is the lack of consistency that can occur between poverty measures utilizing different methods for identifying who is poor.

Another is the preoccupation of conventional poverty studies with consumption expenditure measures of poverty, resulting in relative neglect to income and livelihood strategies of the rural poor opinion and evidence is divided on the question of whether livelihood diversification is associated with less or more income inequality. While diversification is often strategy that enables, the poor to survive in the absence of ownership of assets like land and livestock, the form of this diversification is typically in low paid, causal, and unskilled types of employment. The strongest empirical result of a numerous case studies is the differences between the diversification alternatives of the poor and those of the rich, who are able by virtue of their assets to diversity in high wages labour markets or high, return self-employment.

Education and skills are shown to be critical factors distinguishing the livelihood strategy options of the poor from those of the rural better off. Linked to these human capital attributes, the poor are less able to negative officialdom and bureaucracy in pursuit of alternative livelihood sources than the better off. That is rural social relations, institutions and governance at local levels play a key role in determining the differential success of individuals and families in securing viable livelihood that can provides higher material standards of living.

2.10 Poverty and habitat

It is widespread popular fallacy that natural conditions in tropical Africa are very favorable to agriculture. The exuberant growth of natural vegetation and the rapid regeneration of bush or forest following clearing tend to conceal the fact that soils are for the most part very poor. Over large part of Africa rainfall in either so marginal or erratic as to make farming and even herding hazardous or so intense as to produce leaching and deterioration of soil structure, with consequent loss of nutrients and increase in erosion. In the large areas where there are pronounced rainy and dry season and wide ranges in temperature, the high temperature and
accompanying high rate of vapor-transpiration during the dry season is often accentuated by the hot dry winds from nearby desert, such as the famed harmattan blowing from the Sahara.

African soils are in large part deficient in the characterized of structure, texture and chemical composition while together are principal determents of fertility. The basic poverty of the soils is due principally to poor parent material or rock from which they are derived and low content of organic material. Except for limited areas with soils of volcanic origin, such as those around mountains.

African soils are generally derived from old, acid parent rock, which is poor in calcium and nutrient. The average organic content of African soils is only 0.2-0.5 % As compared with about 2% for the cultivated soils of Europe. This is particularly crucial deficiency because organic matter when converted into humans by the activity of micro-organisms in the soil greatly enhances the soil capacity for retaining moisture, storing the nutrient required by plants and resisting erosion. Moreover, natural conditions are often unfavorable to optimum activity by soil micro-organisms in some cases, producing excessively rapid oxidation of the stock of organic matter under conditions of a porous, well aerated soil, and warm but not excessive soil temperature and, in a few cases, bringing bacteria activities virtually to half under conditions of high soil temperature and excess in acidity.

The precarious equilibrium in Africa soil is easily upset after the natural vegetation is cleared and cultivation begins. Oxidation produced by excessive cultivation may unduly accelerate the activity of microorganisms. The exposure of the bare soil to the violent rains characteristics of tropical Africa can bring about a rapid deterioration of structure by dispersing the finer aggregates to low soil horizons or washing them away. Erosion is often extremely severe under these conditions. Heavy and continue rain can causes rapid deterioration of the soil structure and loss of nutrients, finally continuous cropping inevitable takes nutrients from the soil at a rate greater than their natural reconstitution, and also encourages the development of more resistant weeds which give greater competition to cultivated plants.
3.1 Project Background

The project, for which an IFAD loan of US $ 8.8 million and a grant of US $ 0.7 million are proposed, from the resource of IFADs Special Programme for Sub-Sahara African countries affected by drought and desertification (SPA), aims at increasing the income of some 16400 small, drought affected rainfed, household by improving the efficiency of credit delivery of the Agricultural Bank of Sudan (ABS), strengthening agricultural extension services and promoting cooperative activities. This is strategy to assist small- scale and marginal farmers was first articulated by the IFAD Special Programming Mission (SPM) which visited Sudan in November 1986. Based on (SPM ) concept and its recommendations, the IFAD general identification mission on October 1987 identified e d three possible projects which met IFADs criteria and would be eligible for funding under the ( SPA). Of these, the En Nahoud Cooperative Credit Project (ENCCP) was selected by IFAD and the government of Sudan as the first priority for financing. A base line survey of the ENCCP area was conducted in January 1988. Followed by apreparation mission in April 1988. The finish international development programme office of project services (UNDP/OPS) as IFAD cooperative institutions will cofinance the project.

3.1.1 The Location of the project

The project area of 59000 km² comprises the administrative district of En Nahoud it is located in the south-west corner of North Kordofan Province, 550 km south-west of Khartoum. Situated between arid desert to north and the well-watered plains to the south, the project area is typical of the semi-arid Savannah, which extends across the breadth of Sudan into Chad.

3.1.2 Climate

The climate of the project area is semi-arid, with long- term average rainfall ranging from about 350 mm in the North to 500 mm in the South. The majority of the rainfall in July-September although both the annual rainfall and the monthly distribution fluctuated widely. Thus, whilst average rainfall is adequate to support crops and forage, periodic drought cause crop failure and severe hardship. However, from statistical models, a trend can be identified showing that the periodicity of arid and humid phases is about 100 years, and that for En Nahoud area, the likelihood of being in the last phase of an arid cycle is very probable.

3.1.3 Soil

The soils of project area are generally sandy loams or sand, and are known generally as “goz”. Whilst all sandy in nature, there is a wide variation in the detailed characteristics, which is made more complex as a result of cultivation, grazing and wind/water erosion, which in some instance has redistributed the top soil. In slight topographic depression, or in the B-horizon of flat areas, smaller clay practice has accumulated to form a water- resistance barrier hampering the free draining nature of these soils. Where the surface soil is blown away, this hard layer
effectively prevents the absorption of water and can eventually lead to the death of the vegetation.

In contrast to the more fertile and physically resilient clay soils to the south, the goz soils are easy to cultivate by hand (and by animal traction) are therefore more attractive to small holder agriculturists.

3.1.4 Topography

The topography of the project area is flat to gently undulating, broken only occasionally by small isolated rocky hills or monolith “jebel” remaining from earlier geological formations. There are no permanent waterways, but in the south, wide seasonal (spate) rivers “khors” provide drainage channels for excess run-off.

3.1.5 Economic setting

Sudan, with an area of 2.5 million km² the largest country in Africa, has population of 24 million and is classified by the United Nations as a least development country.

Over the last decade Sudan has been facing serious difficulties caused by years of economic mismanagement, compounded by three successive years of devastating drought conditions, the need to support a large inflow of refugees from neighboring countries and the resumption of civil war in the south. Poor administration of public resources and deep-seated mistrust of market mechanisms deepened economic problems.

During the 1970s, an attempt was made to boost the economy by a wave of nationalization and by substantial public investments financed by foreign donors. The public sector, with a limited implementation capacity was enable to manage these investments effectively and began requiring substantial financial support. Considerable budget and external account deficit emerged. The GDP in the 1985 was roughly at the same level trade, credit supply and extension services, to promote household food self-sufficiency and regional food security, conservation and improvement of natural resources, the increased of producer income, sustainability of rural employment, and a reduction in the need for foreign inputs in agricultural production.

3.1.6 Vegetation

Agricultural and grazing animals, causing an increase in environment degradation have, extensively altered the vegetation of the area of the project. The proposed IFAD– initiated EN Nahoud cooperative credit project would support government efforts by providing improved small holder credit services to increase the productive capacity of the traditional sub-sector and to help stem further deterioration of the environment.

3.1.7 Population

There are various estimates of the number of people in the project area. The latest, obtained from rural councils during the BLS, were constructed to support claims for sugar allowances, they are shown in the Table 3.1 comparison with the 1983 official census figures.
Table 3.1 Settled Rural Population in En Nahud District 1983/1988

<table>
<thead>
<tr>
<th>Rural Council</th>
<th>1983 census</th>
<th>1988 rural council</th>
</tr>
</thead>
<tbody>
<tr>
<td>En Najoud</td>
<td>63952</td>
<td>93000</td>
</tr>
<tr>
<td>Abu Zabad</td>
<td>48088</td>
<td>73000</td>
</tr>
<tr>
<td>Elkhuwei</td>
<td>39742</td>
<td>68000</td>
</tr>
<tr>
<td>Gibeish</td>
<td>76649</td>
<td>92000</td>
</tr>
<tr>
<td>Wad Banda</td>
<td>61204</td>
<td>79000</td>
</tr>
<tr>
<td>Elodaya</td>
<td>56142</td>
<td>92000</td>
</tr>
<tr>
<td>Suqua Elgamal</td>
<td>36719</td>
<td>44000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>382496</strong></td>
<td><strong>547000</strong></td>
</tr>
</tbody>
</table>

The rate of increase in the project area population may not be as great as that implied in the table.

The settled rural population is divided administratively into village councils, which may comprise one large village. But are often made up of a number of small hamlets.

Village location and size is largely influenced by access to permanent water sources. Traditionally, villages are located near open water pools, a shallow well field, or a grove of tabaldi-trees. More recently villages are located near water yards.

Table 3.2 En Nahoud population density

<table>
<thead>
<tr>
<th>Rural Council</th>
<th>Population density settled household per km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>En Najoud</td>
<td>2.4</td>
</tr>
<tr>
<td>Abu Zabad</td>
<td>2.0</td>
</tr>
<tr>
<td>Elkhuwei</td>
<td>0.7</td>
</tr>
<tr>
<td>Gibeish</td>
<td>1.6</td>
</tr>
<tr>
<td>Wad Banda</td>
<td>0.7</td>
</tr>
<tr>
<td>Elodaya</td>
<td>1.3</td>
</tr>
<tr>
<td>Suqua Elgamal</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Districted average</strong></td>
<td><strong>1.4</strong></td>
</tr>
</tbody>
</table>

3.2 IFAD operations in the Sudan

3.2.1 Strategy

Sudan is the one of IFAD priority countries and was amongst the first recipient of IFAD assistance. In the period 1979-1986 IFAD assisted GOS in financing six strategic food production projects in different regions of the country with total amount of US$ 65.5 million. In assisting
Sudan to realize its vast food production potential and improved the living standards of rural poor. IFAD has pursued three-pronged strategy of vertical expansion of the rainfed sector focusing on the development of technological packages. Strengthening of farm support services and protection against environmental degradation, livestock development focusing on the improvement of marketing services (Stock Route) and irrigation rehabilitation and development focusing on the intensification of production and non-farm water management (New Halfa, Northern Region and Northern Province). To promote a balanced regional development, IDAF project are primarily located outside of the control Sudan Region which until no has received the lion’s share of public investment efforts.

Strengthening the weak national services and bolstering agricultural institutions, particularly in the field of credit provision, cooperatives and extension services.

3.2.2 Project objectives

Conforming to the government’s rainfed sector strategy and SPA criteria, the proposed project aims at increasing the agricultural production, incomes and food self-sufficiency of poor, drought-affected, rainfed farming households of the En Nahoud area. The project would assist, in removing major obstacles, to greater agricultural production, i.e. environmental degradation, the lack of inputs (including household water supply) and inadequate farming practices, by ensuring agricultural credit delivery, financing essential farm activities and provides farm support services to facilitate a better and environmentally safer use of land, labour and inputs. The project would provide credit to some 16400 small-scale farmers organized in about 160 cooperatives. While cooperatives would be the primary vehicle for credit delivery at the early stage, the project
would monitor, examine and possibly introduce lending through informal village groups, an experiment which is currently being tested by CARE, an international non-governmental organization.

3.2.3 Design Project

IFAD’s past experience in Sudan and its involvement in on-going project are fully reflected in the design of the proposed project. Thus ABS, and the regional offices of ORC and MOANR would be strengthened by using line agencies to build up local management capacity rather than creating new organizational entities. The project line of credit would be made available through farmer cooperatives, with a certain ceiling for members so as to reach the maximum number of farmers. Content monitoring and evaluation of the effect of the credit would be carried out and a mid-term review in the fourth project year would assess ABS efficiency as well as the replicability of the design. The project is designed to ensure maximum sustainability of its activities.

3.2.4 Project rationale

In spite of their ample potential for increasing national food production, the traditional rainfed areas in general and the En Nahoud area in particular have been virtually ignored in the country’s drive for agricultural development. The population increases in the project area, and the consequent reduction of fallow periods in the system of shifting cultivation threaten to bring about significant damage to the soil, one of the few natural resources on which to build economic recovery in the area and patrimony which must be conserved for the benefit of the future generation.

The proposed project would concentrate on agricultural extension and research to boost food production, emphasizing an increase in yield
rather than area cultivated so as to avoid further erosion. The provision of credit would support the development.

### 3.3 Credit for the rural poor - IFAD’s experience

IFAD’s experience during the past 10 years have shown that, where appropriate conditions prevail, credit projects can have a major impact on increasing the production and income of the rural poor by financing fixed assets as well as working capital requirements, such projects have given IFAD’s target groups-the small and marginal farmers, rural women, non-agricultural self employed entrepreneur, nomadic, herdsmen, etc., access to essential inputs and technology for both on-farm and off-farm production activities.

IFAD’s credit strategy is based on a number of considerations, including: a clear target group orientation, relaxation of the eligibility criteria of lending institutions, and the reorientation of the lending policies, to improve the access of the rural poor to institutional credit, selection of appropriate support and technical package, group formation, and beneficiary participation. This strategy not only ensures that the rural poor have access to institutional credit, but can also contribute to the establishment of credit schemes that are, in the long run, cost effective and financially viable.

One of the most innovative methods of creating access to institutional credit for the rural poor is the group-lending scheme. Lending institutions in any countries have done away with formal collateral requirements and have also simplified their lending procedures where beneficiaries have formed formal or informal groups. Group lending schemes have also been found to have high and satisfactory loan recovery rates.

#### 3.3.1 Project component

The project would implement the following components:
3.3.1.1 Small holder credit

a. **Short term loans** for both food (sorghum and millet) and cash crops (groundnut, sesame and gum arabic) production loans would also be made available for Jubraka crops (mainly vegetables) which are specifically attended by women.

b. **Medium term loans** for water supply development, equipment purchases and off-farm rural enterprises.

c. **Support to Agricultural Bank of Sudanese**, in particular it is Ennahoud branch, through the provision of physical infrastructure (buildings, vehicles and equipment), additional personal staff training and operating funds.

d. **Support to ORC**, providing improved physical infrastructure and strengthening their key personnel’s ability to promote sound co-operative through appropriate training and the financing operational costs.

3.3.1.2 Agricultural development services

The following essential agricultural services would be strengthening:

a. **Extension services**, for the diffusion of simple, more efficient agricultural technology with a back up of the IFAD-supported Western Sudan Agricultural Research Project (WSARP).

b. **Seed multiplication and distribution of improved seeds**, the national seeds administration would lend additional support to the extensional services under whose auspices improved seeds multiplication and distribution would be carried out.

c. **Forestry development**, community nurseries would be established for the propagation and distributed of hashab seedlings for the
production of gum arabic. Cultivation of hashab groves also helps to arrest soil degradation.

3.3.1.3 Monitoring and evaluation

Monitoring and evaluation would consist of project monitoring, follow up socio-economic surveys, an implementation workshop and field studies.

3.4 Organization at Grass-root level

There are composed of agricultural cooperative and agricultural groups (for crops, livestock, water, and horticulture activities. ect.).

3.4.1 The agricultural cooperative

The cooperative are formed by the offices of the register for cooperative at En nahoud, ElOdaiya and Abu Zabad local councils, in coordination with the project implementing agencies, by processing and selecting villages and membership, in line with the annual work plans of these agencies. The total number of cooperative formed during the project lifetime reached 98 villages consisting of 11265 members, males and females which the membership of the latter reaching 10% of the total.

The member size of cooperative ranges, between 75-208 members. The cooperatives are registered according to the cooperative law, at the state and federal level. Legally, the cooperative has corporate status with the right to sue in court.

3.4.2 The agricultural groups

All agricultural groups are initiated by the project extension department, which developed the criteria for their formation to suit the small size membership of some villages, to receive agricultural and other newly project creates loans: livestock, water, horticulture, etc. The total number of formed groups reached 122, with a total membership of 11309
persons. Membership per groups ranges between 20-50 members. These groups are registered under state law.

3.4.3 Management board

The cooperative agricultural group management board includes three officer’s president, secretary, and treasurer besides members elected by its general assembly, which elects also the other local units. The management board performs its work as volunteers. The board responsibilities cover loan receivel, follow up and collection of loans from members. The level of education members is mainly primarily:

a. **Loan receival**: loan requests are received by agricultural bank of Sudan from the cooperative management board, based on the approved of its general assembly meeting. Signature of members and management board, endorsement by cooperative office which certifies, the signature of member registration, and the meeting of ABS lending conditions, with attachment of the minutes of cooperative meeting.

b. **Loan distribution**: the cooperative office follow up the receival of the loan by the cooperative and its distribution to members, based on joint visits by the cooperative, extension and ABS committees, which reports on the condition of agriculture (weeding and harvesting). The ABS extends the loan in installments according to work progress.

c. **Follow up of loan repayments**: this is done through supervision by extension and cooperative department of the farmers groups and by participation in the loan collection campaigns.

3.5 Distribution of credit by activities

3.5.1 Traditional rainfed agriculture
It received Ls 1.5909255176 for 770 loans, which represented, 50% of the total credit line finances, directed to cash crops; groundnut, sesame and the harvesting of gum Arabic, and to crops; millet and sorghum.

3.5.2 Purchase, Rehabilitation and Maintenance water yards

It came next to crop finance, although was initiated late in the lifetime of the project (1997) to bring adequate measures for solving the water shortage in the area. It received Ls 533.142.286 and will be continued in the future. Its situation up to time of project visit evaluation team was:

**Table 3.3 Purchase, Rehabilitation and Maintenance water yards**

<table>
<thead>
<tr>
<th>No. of benefiting communities</th>
<th>Type of loan</th>
<th>Loan size Ls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of water yards</td>
<td>Medium</td>
<td>78510181</td>
</tr>
<tr>
<td>Rehabilitation of water yard</td>
<td>Medium</td>
<td>410392341</td>
</tr>
<tr>
<td>Maintenance of water yard</td>
<td>Short</td>
<td>44239286</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>533142286</td>
</tr>
</tbody>
</table>

Finance was direct to communities to enhance their participation in the rehabilitation and maintenance of the water yards.

Other water credit lines

**Table 3.4 Purchase, Rehabilitation and Maintenance water yards**

<table>
<thead>
<tr>
<th>No.</th>
<th>Loan size Ls</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Water basins (cisterns)</td>
<td>62972908 44</td>
</tr>
<tr>
<td>b</td>
<td>Maintenance of water basins</td>
<td>724000 4</td>
</tr>
<tr>
<td>c</td>
<td>Maintenance of water tankers</td>
<td>22500000 13</td>
</tr>
<tr>
<td>d</td>
<td>Construction of shallow wells</td>
<td>6365400 6</td>
</tr>
</tbody>
</table>
In addition, carts (377) received Ls 191174250 and donkeys for transporting water Ls 54450000, all of which were efforts directed towards alleviating the water problem in the project area.

3.5.3 Livestock components

It received Ls 336383190, mainly for sheep and goats breeding, sheep fattening, diary cattle and poultry. It is stands in the marginal area in the northern part of the project, but in course of project implementation, the southern area received area finances.

3.5.4 Women in development

This component received Ls 113293186, including Jubraka loans of Ls 13918856. It also covered income generating activities, goat rearing, sewing machines, handicrafts, etc. Women also received other types of loans through their membership in the cooperative and agricultural crops.

3.5.5 Artisans loan

A total of Ls 74939000, for 123 loans, covering blacksmith for the manufacture of agriculture hand tools and animal drawn implements. For maintenance workshop equipment, three loans to the value of Ls 6,210,000 were given.
Chapter Four
The Research Methodology

This chapter explains about the site of the research, the methods used to collect data, sample size, sample selection procedures the conceptual model of the study and the hypotheses.

4-1 Site Selection and Village Sample

Where and way En Nahoud province (area), western Kordofan state is semi remote area. The economy of the area depends primary on agriculture that is practiced in hard conditions where people depend mainly on rain for crop production. In that area the experienced drought attacked it frequency to find solution for their agricultural problem and sustainable income.

Recently, the projects introduce and recommended modern agricultural package and income generation activities and access in the area no research carried out concerning financial farmers and their income, food security status and economic sustainability.

No research was carried out concerning farmers income and production quality and quantity, also the extension services is weak. The farmers rely on their own ability to develop new technology.

The research study took place in En Nahoud area, west Kordofan, targeted En Nahoud villages area. The data collected from 7 villages are per area, namely En Nahoud, Abu Zabad, ElKHuwei, Gibeish, WadBanda, Elodaya and Suqua Elgamel (each village is cluster from villages from 2-5 hamlets) The core associated villages were supported by IFAD project through (ENNCP). The criteria of selection of the village was based mainly on the fact they were supported and co-operated with (ENNCP) project, all selected villages were supported with agricultural extension programmers, with the same activities and generation activities programmer, but at same times.
4-2 Sample Selection and Size

This study is designed to investigate the impact of rural financial services on food insecurity by IFAD programme for alleviation of poverty and food insecurity in the En Nahoud area and sustainable Agricultural development and production and improve income generation activities by farmers (target groups) in En Nahoud area. It focuses on food security status, consumption, production, saving and innovation, they were selected according to their influences in the food insecurity and poverty.

The sample of this study was designed to investigate to constitute 69 respondents drawn from the seven mentioned villages each were selected Strafaied randomly from the total beneficiaries.

4-3 Data Collection Procedure

The field survey of the research was organized and carried by the researcher; it took place from 7th October to 20th December 2003 in the seven selected villages that belong to IFAD (ENCCP). Respondent sample were selected by strafaied selection procedure after the lists of the names of all farmers their age was above to 18 years.

The measurement instrument used for data collection was the a pre survey visit for observation to En Nahoud area, IFAD.s project the first stage of data collection in this study, the purpose of the preliminary survey to design questionnaires for the farmers beneficiaries from the IFAD programmer services, to study area for examine the suitability of data collection methods, to test the suitable time for filling the questionnaire.

The second instrument used for data collection was that the questionnaire directed to target group’s rural peoples and designs to satisfy the objective of the study, the questionnaire was administrated to respondent primary data collection using interviews with the respondent
as data collected through face to face interview I took advantage to observe a lot of things effecting farm condition, life condition, farm production, habits and traditions. These observations help me a lot in writing this research and make good judgment lot of

The best time for meeting with respondent was in the market day and in their jobs and others activities such as fuel and water collection, and others. Maximums of 40-50 minute were time spent in filling each questionnaire and through local language. This is because of majority of them illiterate and few literate.

The secondary source of data are used to assist developing review of literatures and background information about target groups population were obtained from appraisal report En Nahoud Cooperative credit programmer IFAD, s projects and from others document that includes two published books in addition to baseline survey report, internal evaluation study and final project report.

4- 4 Data Analysis Procedure

Different statistical procedures used in manage and analysis of data obtained in this study. Frequently distribution transformed in to tables used in a wide range to analyze, and manage the research data. Computer analysis technique used for data analysis and management with statistical programmer was the statistical package for social science (SPSS). Descriptive statistics were generated to describe the sample and the background variables of the study; correlation analysis was conducted to identify significant correlates of the model variables. T-test analysis and Chi-square procedure were employed to determine the significance of observed different between farmers groups. Multi regression (Stepwise procedure) and path analysis moreover were employed for testing the conceptual model of the study and determine the factors that have direct or indirect effect on the endogenous variables of the model.
4-5 The General Research Hypotheses

To answer the core questions of the study the following hypotheses were put to be test.

1- Adoption of the technological package by farmer in En Nahoud Area implemented by IFAD,s project improve of traditional technology and development of farming system regarded positively as a viable means of increasing the production, and income of resources poor farmers it enable them to intensify their production without risk and achieved food security as well as diverse their production, consumption and sustain development of the production. The farming conditions of the small holders must reflected in the development of technology, and the poor must be brought into efficient processes by removing institutional barriers to their movement from a lower to a higher level of technology.

- Farmer in En Nahoud area perceive greater advantages occurring through improvement food security situation, farm productivity, raise their income above the poverty lines through the promote of the village services by IFAD,s project (supporting waters, Environment conservation, off-farm opportunity, to jobs, and income generation activities) and diverse the production, consumption and raise the average farm production of the farmers per seasons and the proportion of wages earners in agricultural labour force has raise substantially in recent years. And non-agricultural rural activities showed are developed.

- IFAD,s credit is covering all services needed by the farmers if provide either income during a particular season, or semi-permanent income through the ongoing construction and maintenance of social and physical infrastructure in rural areas. Moreover the wide range of
potential jobs created could be made use of to alleviate rural poverty and sustain development of farm production

- The structural transformation was associated with environment of population from rural to urban market by existing of road and information canals. And people save their production until raise their crop prices.

- There is significant rate of change of rural poverty and deprivation result from people’s ability to improve their productivity or find gainful employment.

4.5.1 Hypotheses Related to Casual Model

- Farm production is positively affected by adoption of technology, availability of water, farm size, household size, access to credit and services and negatively affected by environmental factors, transportation and communication and age.

- Household income is affected positively by IFADs programmers (access to credit and, production) for supporting agricultural production, productivity and off-farm opportunity to generate income activities, food security, food consumption and saving, and his negatively affected by household and age.

- Food security in En Nahoud is affected positively by existence of water (for irrigation and drinking) farm productivity (quality and diverse) saving, consumption, access to credit and services, gross farm out put for income and household income, and negatively affected by environmental factors and household size are affected.

- Adoption of technology in E Nahoud area is positively affected by farm size, household income, education, access to credit and services. And negatively affected by age and consumption are affected.
• Access to credit and services in En Nahoud area is affected positively by production, education, and adoption of technology. It is also affected farm size, and household income and negatively affected by environment factors and age.

• Saving of food by farmers in En Nahoud area is positively affected by farm production, household income, and negatively by consumption and household size.

• Marketing affected in En Nahoud area is positively affected by transportation and communication, farm production, saving, consumption, and negatively by food insecurity.

• Consumption of food in En Nahoud area is positively affected by farm production, household income, and negatively by household size.

• Household size is affected positively by household income and farm production, and negatively by age, access to credit and financial services and education.
Chapter Five
Result AND Discussion
PART ONE

5.1 General Characteristics of respondent in En Nahoud area

The financial services practices that were provided by (ENCCP) and the impact of rural financial services were discussed with the respondents, which were divided in two periods before and after (ENCCP).

Frequency distribution and t.test analysis were used to examine same characteristics of the sample that include age, social status, family size, education level, farm size, occupation diversity, consumption diversity, food security status, training and adoption of technology.

- **Age**

The result in table (5.1) revealed that age 36.2 percent respondent’s falls within range of 56 and 65 years old. Where of the of the age ranges between 46-55 years old stated 24.6 percent. while 21.7 percent their age less than 35 years old and blew 25 years old. But 13.4 percent for the respondents interviewed their age ranges between 26-35 years, this situation in addition to the respondents in their active age could attributed to the migration of rural people in the En Nahoud area to the urban parts especially Khartoum to look for better jobs opportunity in order generate more income.

- **Education level**

Table (5.2) revealed that the Khalwa level of education is the dominant characteristic feature is (34.8%) due to lack of access to formal education and opportunities on the area is largely restricted to primary school 27.5%, in addition to those who obtained illiterate level were dominant many respondents, while only 10.1 % attained intermediate, however this is attributed to mask drop-out and include re-enrolment,
there appears to be a marketed and labour drop in the proportion of respondents attending intermediate as compared to primary school, it is reasonable to suppose that this drop refers particularly to respondents since access to intermediate depends upon parents being able to meet boarding fees in addition to fees for tuition and materials. Among those attained higher secondary school level only 5.8%, and no farmer in university level.

Family size

The result in table (5.3) presented that (52.2%) of the respondents their families members range from 6 to 10 persons, while (17.4%) of the
respondents ranges from 11-15 persons and (16%) range from 1-5 persons and only (7.2%) tier family member 15persons and above.

- Occupational

The results shows that most respondents practices agriculture cultivation as the main and secondary jobs 89.9 and 76.8 percent before and after (ENCCP)(table 5.4) is not fully involving keeping the respondent involving, but not all are fully time farmers, its found that are part –time farmers and they significant difference between before and after (ENCCP) in main job are seasonal, and farms only as supplementary part of rural employment on which income and food security still largely depend. And said that the secondary activities allow to increase income. And complement to production for smallholder who can support household from their plots. And the respondent admitted that the non-farming activates are increased seen as absorbing the rapidly growing labour force in En Nahoud area, as result of (ENCCP) service’s. The low level of wages paid to agricultural labour, lower on small holding them in estates, leads farmer depending for hired labour on the landless and other poor groups such as divorced and separated women.

In table 5.5 revealed that all farmers practice off –season work and tends to be irregular and part time in character, responded mentioned that they practices second activities.

Occupation Diversity

Table 5.6 reflected that the respondents fall under secondary activities or off- farm season activities have increased 8.7% from none activities to engaged in activities, also free job activities have increased 11.2 %, and labour job 8.7%, this due to important of off-farm activities of help them for improve their lives and earn enough money to meet their basic needs because the growth in agricultural income is generally so low that after meeting little basic needs as to food, also due to fluctuations of
agricultural production due to climatic factors, they engaged on jobs as suppliers of repair and maintenance services, stores of agricultural commodities, general transport services, personal services and manufactures

- **Farm Labour**

  As shown in table 5.7 that the numbers of respondents work in farm individually increased 4.3 percent after financial service project, while family member labour decreased 4.3 percent due to migration of active family members.

  **Social status**

  The result in table (5.8) reflected that social status of the respondents, married are the dominant characteristic feature 75.4 percent and 11.6 percent divorced and widows (majority of hem women) comes next in percentage of social status of the farmers and only 14 percent are single.
Table 5.4 frequencies distribution by farmer main jobs

<table>
<thead>
<tr>
<th>Main jobs</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Agriculture</td>
<td>62</td>
<td>89.9</td>
</tr>
<tr>
<td>Nomad’s</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Petty trading</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Labors</td>
<td>1</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.5 frequencies distribution by farmer secondary jobs

<table>
<thead>
<tr>
<th>Main jobs</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Nomad’s</td>
<td>15</td>
<td>21.7</td>
</tr>
<tr>
<td>Petty trading</td>
<td>23</td>
<td>33.3</td>
</tr>
<tr>
<td>Labors</td>
<td>8</td>
<td>11.6</td>
</tr>
<tr>
<td>Free jobs</td>
<td>7</td>
<td>10.1</td>
</tr>
<tr>
<td>Agriculture</td>
<td>14</td>
<td>18.8</td>
</tr>
<tr>
<td>Total</td>
<td>69</td>
<td>100</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.6 distributions of respondents by their occupational diversity

<table>
<thead>
<tr>
<th>Secondary activities</th>
<th>Frequency</th>
<th>Percent</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>6</td>
<td>8.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nomads</td>
<td>3</td>
<td>4.7</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Petty trading</td>
<td>20</td>
<td>29.0</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Labour</td>
<td>16</td>
<td>23.2</td>
<td>22</td>
<td>31.9</td>
</tr>
<tr>
<td>Cultivation</td>
<td>11</td>
<td>15.9</td>
<td>6</td>
<td>8.7</td>
</tr>
<tr>
<td>Free activities</td>
<td>13</td>
<td>18.8</td>
<td>30</td>
<td>43.5</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.7 Distribution of Respondents by their farm labour before and after financial services

<table>
<thead>
<tr>
<th>Farm labours</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Individually</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Family members</td>
<td>25</td>
<td>36.2</td>
</tr>
<tr>
<td>Nafair</td>
<td>7</td>
<td>10.1</td>
</tr>
<tr>
<td>Labour</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Surba</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Individually family member</td>
<td>15</td>
<td>21.7</td>
</tr>
<tr>
<td>Nafair r+ individually</td>
<td>6</td>
<td>8.7</td>
</tr>
<tr>
<td>Labour + family member</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Individually + labour</td>
<td>4</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.8 frequencies distribution by respondent’s social status
<table>
<thead>
<tr>
<th>Social status</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td>Married</td>
<td>52</td>
<td>75.4</td>
</tr>
<tr>
<td>Divorced</td>
<td>8</td>
<td>1.6</td>
</tr>
<tr>
<td>Widow</td>
<td>8</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Sources: data survey 2003
• **Gaining Training**
The results in table 5.9 reveal and 44.9 percent of the respondents fall under training after financial services project in the area of study, while only 17.4 percent gaining training before financial services project, this to amount of rural training are low before financial serves, the respondents admitted that this attributed to the project organise the beneficiaries in to credit groups (Rural Association Groups) these provided incidental training and many also provide framers training, despite their diversity nearly all groups have characteristics in common. Most of their member ships and virtually all of their leader ships drown down from the elite, those more powerful, more articulate and better connected to urban –based sources of coordination between them. The result is that training is largely incoherent and uneven technical quality, and do not consistently reach the poor.

• **Trainees Other**
The numbers of rural farmers training to transmit technical information and skill low according to result reflect in table 5.10 percent only 4.3 percent trained and increased to 30.4 after financial services project, most of them are women received training in knowledge and skills relating to families such as home economic, Jubraka and activities generate income such as women activities generated income- groups. And few men this attributed to most of male trained unfitting around the patterns because are rural elite.
• **Benefit Gained After Training**
There are different benefits gained after training as shown in table 5.11. Gain new knowledge is considered one of the main benefits as stated by 89.9 percent of respondents before financial services, and 52.2 percent after financial services projects. Also, there are two different benefits which come under other this include improvement and generating supplementary income as stated by 5.8 of respondents before and 29 percent after financial services project, reasonably that when this beneficiaries respondents participate in formulating and undertaking training it is more likely to be intelligible, relevant, and practicable, and applied new technology stated by 4.3 percent of respondents before and 18.8 percent of respondents after financial services.

• **Changes in the Family After Training**
The evidence in table 5.12 show that improve the productivity one of the changes in the family after financial services project as stated by 58 percent of the respondents, while better utilise resources within their environment endangering it is one of the change in the family before financial services projects as stated by 62.3% in the same table show that there are different changes which came under this include applied new variety of crops and increase the knowledge about cultivation.
Problem and Constrain Facing Training

The result in table 5.13 shows that about 52.2% of the respondents said that the problem facing whom in training ways of translation and content of training after financial services programs and 43.4% before financial services program this attributed to non contribution of clients people to design and implement their own poverty alleviating projects has focused upon training staff, top-down systems are that out reach to the poor is greater. 56.5 before and 47.8 after financial services mentioned unsuitable time and short period of training.

Table 5.9 distributions of respondents by their gaining training before and after financial services

<table>
<thead>
<tr>
<th>Gaining training</th>
<th>Before financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
</tr>
<tr>
<td>Frequency</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>Training others</td>
<td>Before Financial services</td>
<td>After financial services</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>No</td>
<td>66</td>
<td>95.7</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

<table>
<thead>
<tr>
<th>Benefit gain after training</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Gain new Knowledge</td>
<td>62</td>
<td>89.9</td>
</tr>
<tr>
<td>Improvement and generating supplementary income</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>Applied new technology</td>
<td>3</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003
<table>
<thead>
<tr>
<th>Changes in the family after training</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Improve their productivity</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Applied new Variety of crops</td>
<td>7</td>
<td>10.1</td>
</tr>
<tr>
<td>Increase the knowledge about</td>
<td>16</td>
<td>23.2</td>
</tr>
<tr>
<td>cultivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better utilize resources with in</td>
<td>43</td>
<td>62.3</td>
</tr>
<tr>
<td>their environment endangering it</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Data survey 2003
Table 5.13 Distribution of Respondents by their problem and constrain facing training before and after financial services

<table>
<thead>
<tr>
<th>Changes in the family after training</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Unsuitable time and short period and content</td>
<td>39</td>
<td>56.5</td>
</tr>
<tr>
<td>Ways of translation of training</td>
<td>30</td>
<td>43.4</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

- **Crop Transport**
  Table 5.14 indicated that availability of transport increased 9.8 percent after financial services, but IFAD programme do not support this sector in the study area. Table 5.15 shows that the number of respondents transported their crop by bullock cart increased 15 percent after financial services of local transport, in same table decrease number of farms transported their crop by motor care between villages due to lack of feeder roads, particularly one hour to smaller producers and high cost.

- **Crop Residues**
  In table 5.16 reflected that about 73.9 and 91.3 percent of the farmer mentioned that they benefit from their crops residues and their significant different between before and after in (ENCCP) the main used from crops residues are in the building
constructions due to more houses of rural people made from local materials, and livestock fodder as showing in table (5.17) according to farmers can easy dried and store for feeding their animals and provide work opportunities on off-season as income generation activities by marketing it in town near them, in other hand the farmers admitted that they used as local foods for them consumption and women generate high income from local manufacturing.

- **Water Availability**

From table 5.18 availability of water increased in study area financial services projects 29.3 percent due to building of hodes of water storage and pumping water, supply of water cars, transport water from city to villages beside donkey and other supped water, function of the time spent in travelling reach these facilities, extended that women s average daily Jerrycan to collects water have decreased more than 8-10 hours. Also the water services in the study area have been increased employment opportunities during dry season and stabilising of people from travelling to town.

### Table 5.14, Distribution of Respondents by their ways of transportation crops before and after financial services

<table>
<thead>
<tr>
<th>Ways of transport crops</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Bullock cart from farm to household</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>By motor cart from farm to market</td>
<td>11</td>
<td>17.5</td>
</tr>
<tr>
<td>Head load from farm to house and from house to market by bullock</td>
<td>10</td>
<td>15.9</td>
</tr>
</tbody>
</table>
### Table 5.15 Distribution of Respondents by their availability of roads before and after financial services

<table>
<thead>
<tr>
<th>Ways of transport crops</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>69.9</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
<td>30.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

### Table 5.16 Distribution of Respondents by their benefit from crop residues before and after financial services

<table>
<thead>
<tr>
<th>Ways of transport crops</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>51</td>
<td>73.9</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>26.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

### Table 5.17 Distribution of Respondents by their benefit from crop residues before and after financial services

Table 5.17 Distribution of Respondents by their benefit from crop residues before and after financial services

<table>
<thead>
<tr>
<th>Ways of transport crops</th>
<th>Before Financial services</th>
<th>After financial services</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>51</td>
<td>73.9</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>26.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003
<table>
<thead>
<tr>
<th>Ways of transport crops</th>
<th>Type of crop resident</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sorghum</td>
<td>Canebrake and hay</td>
<td>Construction</td>
</tr>
<tr>
<td>Millet</td>
<td>Canebrake ad hay</td>
<td>Construction</td>
</tr>
<tr>
<td>Sesame</td>
<td>Trees</td>
<td>Forage</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>Safer</td>
<td>Forage</td>
</tr>
<tr>
<td>Karkaday</td>
<td>Arracks</td>
<td>Forage and foods</td>
</tr>
<tr>
<td>Watermelon</td>
<td>Arracks</td>
<td>Forage and foods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Availability of water</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Available</td>
<td>8</td>
<td>11.6</td>
</tr>
<tr>
<td>Afew</td>
<td>17</td>
<td>24.6</td>
</tr>
<tr>
<td>Not available</td>
<td>28</td>
<td>40.6</td>
</tr>
<tr>
<td>Difficult</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Not exist</td>
<td>7</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.18 Distribution of Respondents by their availability of water before and after financial services

<table>
<thead>
<tr>
<th>Crops marketing</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>58</td>
<td>84.1</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>15.9</td>
</tr>
</tbody>
</table>

Table 5.19 Distribution of Respondents by their Crops marketing before and after financial services

Sources: Data survey 2003
• **Crop Marketing**
The result shows in table (5.19) that the majority of the respondents about 84 percent similarly amount in two periods before and after financial services project, marketed their crop production, this indicated that the crops are major source of rural income, the respondents admitted that almost marketed their crop products but they are variation amount in two period the amount after financial services project increase due to concentrated their cultivation on cash crops.

• **Method of Crop Marketing**
As in table 5.20 reflect that direct method of marketing decrease from 33.3 percent before financial services to 13 percent after financial services, due to the respondents said that after harvesting season their look for better jobs opportunities in order to generate more income, in the same table similarly result marketing crops by middlemen method decrease from 33.3 percent to 26.1 percent after financial services project in the study area, this deal with farmers engaged in buying and selling products gained certain information about the products prices and marketing. While increasing the whole sellers marketing method by farmers after financial services attributed to the respondents increase their products due to this farmers willing to know which markets are offering the highest prices for given type and grade products, also how much market can absorb the transport cost with out an adverse affect an price given to him. Also the whole sellers have access to communication and transport facilities they buy and sell in different areas where the demand differs. In the same table also the result remain that the respondents tend to buys their products to retails according to farmers mentioned that they store your crops and sell small surplus to retail to meet their urgent needs or to buys small qualities on a day – today basis, this indicated that the simplest form of marketing is the bartering of surplus of products for product that are needed. also the respondents said that they practices another form retails arranged through members of families brother located in producing area sends produce to brother who retails it in town

• **Place of Marketing Products**
The result in table 5.21 shows that most farmers sell their products at villages markets this attributed to farmers incentive to produce commodities for sale rather than only for their own subsistence therefore depends upon the prices they can get locally. And about 29 and 33.3 percent before and after financial services project sell their own products in large city markets are too far away, they do not have the mean of transportation their products there, their volume of products is not large enough to justify their performance these operations any way.

- **Problem affecting crop marketing**
  Table 5.22 shows that there are different factors affecting crop marketing production condition is considered one of the main factors as stated by 52.2 percent of farmers after financial services projects while 26.2 percent before financial services this attributed to market influences by improved and new variety, type of the productivity and production quality and the success of the season, also there are different factors which comes under this include this production and storage according to inadequate transport and storage facilities are largely responsible for the marketing efficiency and low prices of last products, also the prices after harvesting under affected markets.

<table>
<thead>
<tr>
<th>Method of the marketing</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source of marketing</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>Directly</td>
<td>23</td>
<td>33.3</td>
</tr>
<tr>
<td>Middlemen</td>
<td>23</td>
<td>33.3</td>
</tr>
<tr>
<td>Whole trader</td>
<td>15</td>
<td>21.7</td>
</tr>
<tr>
<td>Patter retail</td>
<td>8</td>
<td>11.6</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

### Table 5.21 Distribution of Respondents by their please of marketing product before and after financial services

<table>
<thead>
<tr>
<th>Please of marketing product</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>In farm</td>
<td>4</td>
<td>5.8</td>
</tr>
<tr>
<td>In village market</td>
<td>45</td>
<td>65.2</td>
</tr>
<tr>
<td>In city market</td>
<td>20</td>
<td>29</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

### Table 5.22 Distribution of Respondents by their problem face the marketing before and after financial services

<table>
<thead>
<tr>
<th>Problem face the marketing</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Production condition</td>
<td>18</td>
<td>26.1</td>
</tr>
<tr>
<td>Transportation and storage</td>
<td>23222</td>
<td>3</td>
</tr>
</tbody>
</table>
• **Item Concern to Food Security**

The result in table 5.23 indicate that about 17.47 percent of the respondents enjoy high food security status before financial services increased after financial, and 43.5 percent after financial services increased, increased after financial services 26.1 percent l, this due to the respondents are down with relatively high domestic food production potential, with good management of resources, while 49.3 percent of respondent enjoy Medium food security status before financial services, and 36.2 percent after financial services project declined 13.1 percent after financial services this attributed to respondents, which in any given year of different weather conditions could suffer serious setback in their food security status. About 33.3 percent of respondents before financial services suffer from low food security status while 20.3 percent after financial services, declined 13 percent after financial services this attributed to this group suffer from uncertain natural environment and very limited production potential.

• **Impact of Food Insecurity**

Table 5.24 shows that the majority about 24.3 of the respondents mentioned that the impact of food insecurity and food shortage in the area are rural to urban migration as the male labour force migrates to town as in search of jab such as...
(Gadarief and Demazien) and the situation further aggravated in rural women themselves have to seek income away from the farm in order to meet their subsistence needs, of the result is a continuous decrease in overall agricultural productivity and consequent over increasing need to migrate from rural areas, and (10%) they mentioned that nutrient deficiencies and infant were found to be malnourished and the people become wreaks, (8.6%) said that drought affected on the rangeland vegetation and degradation, while (7.1%) mentioned that women soled of personal affects including jewellery by peasant women is an indicator of severe stress, also (18.6%) of respondent mentioned that died of large number of animal, while (11.4%) said that animal prices collapsing while grain prices soared, and (14.3%) mentioned that food shortage and famine, and said that the migration of the famine victims creates new problems in the losing and receiving area.

- **Food Shortage**

Table 5.24 shows that the majority about (24.3%) of farmers mentioned that the impact of food shortages and food insecurity in the area rural and urban migration as the male labour force migrate to town in search of jobs and the situation further aggravated in rural women themselves have to seek income away from the farm in order to meet their subsistence needs, the result is a continuous decrease in overall agricultural productivity and consequent over increasing need to migrate from rural area, 18.6 percent of farmers admitted that died of large number of animals due to lack of forage and water, and 11.4 percent of farmer said that animal prices collapsing while grain prices soared, and 14.3 percent of farmers mentioned that food shortage and famine they admitted that the migration of famine victims creates new problems in both
the losing and receiving area, while 10 percent stated that nutrient deficiencies the result infant were found to be malnourished and people become wreaked and 8.6 percent of the farmers mentioned that the drought affected on the rangeland vegetation and degradation, and 7.1 percent said that women sailed of personal affects including jewellery by peasant women are an indication of severe stress. While 5.7 percent admitted that the storage amount of subsidies crop are consumed.

Table 5.23 Distribution of Respondents by their food security status before and after financial services

<table>
<thead>
<tr>
<th>Food security status</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>High</td>
<td>17.4</td>
<td>43.5</td>
</tr>
<tr>
<td>Medium</td>
<td>49.3</td>
<td>36.2</td>
</tr>
<tr>
<td>Low</td>
<td>33.3</td>
<td>20</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.24 Distribution of Respondents by their food shortages and food insecurity before and after financial services
<table>
<thead>
<tr>
<th>Impact of food shortages and food insecurity</th>
<th>Farmer type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 70</td>
</tr>
<tr>
<td>Animal prices collapsing while grain prices soared</td>
<td>11.4%</td>
</tr>
<tr>
<td>Women sailed of personal affected, including jewelers</td>
<td>7.1%</td>
</tr>
<tr>
<td>Rural to urban migration</td>
<td>24.3%</td>
</tr>
<tr>
<td>Food shortage and famine</td>
<td>14.3%</td>
</tr>
<tr>
<td>Died of large number of animals</td>
<td>18.6%</td>
</tr>
<tr>
<td>Nutrient defiance</td>
<td>10%</td>
</tr>
<tr>
<td>Drought affected on the rangeland vegetation and degradation</td>
<td>8.6%</td>
</tr>
<tr>
<td>Storage amount of cereal are consumed</td>
<td>5.7%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

**Consumption**

Table 5.25 show that the vegetables and fruits consumptions diverse among respondents of new and high-quality seeds of vegetables introduce by (ENCCP) this attributes to farmers adopted of new and high-quality seeds of vegetables introduced by (ENCCP) in the area most whom are women and improved horticulture irrigation. But decreased the consumption diverse of legumes reduced whit meat, this indicators livestock disruption due to drought, and livestock’s are often the only sources
of meat foods and in the same table increase the consumption diverse of sorghum and groundnuts also due to adopted high-quality of seeds of sorghum its early maturation and high quality and suitable in the area.

Groundnuts according to adopted new innovation of new seeds and oil presses, the respondents admitted that diversities of consumption varies with the seasonal availability of food, particularly among household producing their own food and among the wag-dependent household whose in money wages and lack of choice, also consumption according to their family needs as use the medicine.

- **Reason of Non Consumption:**

Table 5.26 reflected that about 45 percent of the respondents use the millet only in their food consumption before financial services, this attributed to unsuccessful of sorghums cultivation in the area, due to their habitats also some respondents mentioned that in the past depend on their food consumption on the animal and lost their animal worth according to drought for this exchange by millet, while 42 percent use millet only after (ENCCP), declined 3 percent due to adopting of high quality of sorghum seeds. In the area, and in same table about 33.3 percent and 31.9 percent of respondent before and after financial services did not divers their food consumption according to shortages of money, they depended on their own products and decline percent due to raised their income. While 21.7 and 26.1 percent before and after (ENCCP) did not divers their food consumption due to their location are far also other things to diverse not existing in their area.

From table 5.27 increased diverse of food consumptions per year 13 percent by mix sorghums and millet after financial services project, and increased 14.5 percent by some times millet, sorghum and breads, while decreased the number of respondents are diverse by millet to 27.6 percent due to adapted of sorghum.
● **Food Diverse**

The evidence in table 5.18 that there is greater difference in the consumption diverse of food in house of the respondents in study area before and after financial services is raised from 44.9 to 73.9 of respondent this attributed to raised awareness of food consumption, distribution and favoured consumption between respondents, it is known that adult female and children are discrimination against of favour of adult meals. While respondent no diverse their food consumption are stated by 55.1 before and decreased to 26.1 after financial services. Also consumption of food depend on varies with the seasonal availability of food, particularly among household of farmers producing their own food and among the waged –dependent household whose intake is affected by seasonal variations in money wages. Lack of choice according to mentioned of the respondents.

<p>| Table: 5.25 frequencies distribution by times of consumption of food types |
|--------------------------------------------------|--------------------------------------------------|</p>
<table>
<thead>
<tr>
<th><strong>Before (ENCCP)</strong></th>
<th><strong>After (ENCCP)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Al time</td>
<td>Some times</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Vegetable</td>
<td>11</td>
</tr>
<tr>
<td>Fruits</td>
<td>7.2</td>
</tr>
<tr>
<td>Legume</td>
<td>56.5</td>
</tr>
<tr>
<td>Red meat</td>
<td>17</td>
</tr>
<tr>
<td>White meat</td>
<td>88.4</td>
</tr>
<tr>
<td>Millet</td>
<td>85.5</td>
</tr>
</tbody>
</table>
Sorghum  | 49.3 | 19.6 | 31.1 | 65.2 | 26.1 | 8.7  
Ground nuts | 33.3 | 29   | 37.7 | 91.3 | 5.8  | 2.9  
Sesame   | 27   | 50   | 23   | 5.8  | 23.2 | 71   
Karkady  | 8.7  | 66.7 | 24.6 | 5.8  | 29   | 65.2 
Watermelons | 36.2 | 45.4 | 18.4 | 14.5 | 59.4 | 26.1 

Sources: data survey 2003

<table>
<thead>
<tr>
<th>Reason of not consumption</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Use millet only</td>
<td>45</td>
<td>42</td>
</tr>
<tr>
<td>Limited of income</td>
<td>33.3</td>
<td>31.9</td>
</tr>
<tr>
<td>Location</td>
<td>21.7</td>
<td>26.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

- Saving
The result shows that the majority of the farmers 71 and 87 percent, mentioned that they saved from their crops before and after (ENCCP), and there are significant different between before and after (ENCCP) table 5.28.
This result reveals that availability of credit promotes savings in the areas, and agricultural products create credit surplus and hence saving, and the farers admitted that without adequate savings from within the sector there cannot be sustainable income and production growth, nor can household food security be guaranteed over the long term.

Table 5.29 indicated that the reason of farmer not saving from their production, about 23.2 and 14.6 percent before and after and, mentioned that the limit of output, 2.3 and 27.5 percent before and after transfer their crops to cash saving because they attributed that they often left reliant on saving mechanisms that generate no real additional income, 17.2 and 15.8 percent before and after (ENCCP), they said that repayment the loan because the loan repayment to be made out of surplus further income that to say out of saving, while about 49.3 and 26.1 percent before and after (ENNCP) no accessing to saving, this indicated that long savings of crops change the test and color of crops thereby reduced the price of it.

Table 5.30 shows that the saved amounts of the farmers products, the amount of the saving influenced by external and internal resources, capacity to save, income, rural markets, prices level and wealth, this mentioned by farmers.

<table>
<thead>
<tr>
<th>Food consumption diverse</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent</td>
<td>Percent</td>
</tr>
<tr>
<td>Mixed sorghum and millet</td>
<td>18.9 %</td>
<td>31.9 %</td>
</tr>
<tr>
<td>In winter use millet in summer and autumn use sorghum</td>
<td>31.9 %</td>
<td>31.9 %</td>
</tr>
<tr>
<td>Some times millet, sorghum and breads</td>
<td>11.6 %</td>
<td>26.1 %</td>
</tr>
<tr>
<td>Diverse to millet</td>
<td>37.7 %</td>
<td>10.15</td>
</tr>
</tbody>
</table>
### Table 5.28 Distribution of Respondents by their consumption diverse of foods in the household before and financial services

<table>
<thead>
<tr>
<th>Consumption diverse of foods in the household</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>31</td>
<td>44.9</td>
</tr>
<tr>
<td>No</td>
<td>38</td>
<td>55.1</td>
</tr>
</tbody>
</table>

### Table 5.29 Distribution of Respondents by their saving crop product before financial services

<table>
<thead>
<tr>
<th>Saving crop product</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Yes</td>
<td>49</td>
<td>71</td>
</tr>
<tr>
<td>No</td>
<td>20</td>
<td>29</td>
</tr>
</tbody>
</table>

### Table 5.30 Distribution of Respondents by their reason behind not saving crop product before and after financial services

<table>
<thead>
<tr>
<th>Reason behind not saving crop product</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited of agricultural out put</td>
<td>16</td>
<td>23.2</td>
</tr>
<tr>
<td>Reason</td>
<td>Before (ENCCP)</td>
<td>Percent</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>Transfer crops to cash</td>
<td>14</td>
<td>20.3</td>
</tr>
<tr>
<td>To repayment loan</td>
<td>5</td>
<td>7.2</td>
</tr>
<tr>
<td>Lack of access to saving</td>
<td>34</td>
<td>49.3</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.31 Distribution of Respondents by their average saving crop product before and after financial services

<table>
<thead>
<tr>
<th>Average saving crop product</th>
<th>Before (ENCCP)</th>
<th>After (ENCCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Half of the products at first</td>
<td>20</td>
<td>30.4</td>
</tr>
<tr>
<td>More than half of the product</td>
<td>16</td>
<td>23.2</td>
</tr>
<tr>
<td>For seeds only</td>
<td>11</td>
<td>15.9</td>
</tr>
<tr>
<td>All product</td>
<td>14</td>
<td>20.3</td>
</tr>
<tr>
<td>Selling less than quarter of the products and the remaining</td>
<td>7</td>
<td>10.1</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003
Livestock Benefits

Table 5.32 reflect that livestock supply number of important products before and after financial services project, such as milk represent 17.4 percent before, and 14.5 percent after financial services project, decreased 2.9 percent after financial services project, due to ownership of small livestock and husbandry is applied by women and products have marketed by women can bring increased women income. And livestock’s for transport function represented 10.1 percent before and 7.2 percent after, increased 4.3 percent after financial services due to fluctuation of agricultural production, livestock labour function increased 4.3 percent, the factors behind this is adopted of donkey and horses car (Karo technology) introduced by IFAD in area of study, and caring water. And marketing function increased 1.9 percent, also the respondent mentioned that the sale of livestock and livestock products such as milk, meat, wool, skin, hides contribute to local agro-industrial development and diversification of income and obviously an important way of generating working fund and capital, and raising their income.

From table 5.33 livestock family labour member are decreased 7.1 percent, and rent labour number 2.9 percent after financial services project, this attributed to livestock disruption due to drought as the respondent mentioned, livestock family labour provide work for or done by women, children and old people who would otherwise probably be unemployment.
Table 5.32 Distribution of Respondents by their reason for owned animals before and after financial project

<table>
<thead>
<tr>
<th>Variable</th>
<th>Before (ENCCP)</th>
<th></th>
<th>After (ENCCP)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Meat</td>
<td>4</td>
<td>5.8</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Milk</td>
<td>12</td>
<td>17.4</td>
<td>10</td>
<td>14.5</td>
</tr>
<tr>
<td>Transport</td>
<td>7</td>
<td>10.1</td>
<td>5</td>
<td>7.2</td>
</tr>
<tr>
<td>Marketing</td>
<td>2</td>
<td>2.9</td>
<td>3</td>
<td>4.3</td>
</tr>
<tr>
<td>Labour</td>
<td>2</td>
<td>2.9</td>
<td>5</td>
<td>7.2</td>
</tr>
<tr>
<td>Savings</td>
<td>10</td>
<td>14.5</td>
<td>13</td>
<td>18.8</td>
</tr>
<tr>
<td>Prestige</td>
<td>3</td>
<td>4.3</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Milk and saving</td>
<td>10</td>
<td>14.5</td>
<td>8</td>
<td>11.6</td>
</tr>
<tr>
<td>Labour and saving</td>
<td>3</td>
<td>4.3</td>
<td>6</td>
<td>8.7</td>
</tr>
<tr>
<td>Labour and market</td>
<td>8</td>
<td>11.6</td>
<td>7</td>
<td>10.1</td>
</tr>
<tr>
<td>Transport and labour</td>
<td>3</td>
<td>4.3</td>
<td>2</td>
<td>2.9</td>
</tr>
<tr>
<td>Marketing and saving</td>
<td>5</td>
<td>7.2</td>
<td>5</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.33 Distribution of Respondents by their animal labour before financial services

<table>
<thead>
<tr>
<th>Animal labour</th>
<th>Before (ENCCP)</th>
<th></th>
<th>After (ENCCP)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>Family labou</td>
<td>32</td>
<td>46.4</td>
<td>33</td>
<td>39.3</td>
</tr>
<tr>
<td>Rent labour</td>
<td>37</td>
<td>53.6</td>
<td>35</td>
<td>50.7</td>
</tr>
</tbody>
</table>
Table 5.34 reveals that to respondents income from agricultural, non agricultural and animals before and after (ENCCP) are significant difference of level 0.000, that is before (ENCCP) are short fall of income from that of full employment, shortage fall in number of days employment from desirable annual minimum, and shortfall of productivity per unit of labour from that full employment. These three statistics are strongly correlated to poverty, and low position is attributable to the fact that there has been no agricultural income to provide the demand stimulus for non agricultural, mentioned by respondents this attitude to real challenge is to modify the survival strategies of poor so that they are better able to cope with risk through mix farm and non farm activities which will diversity and stabilise their sources of income. In the same table the result indicated that the income of number of respondents is generally so low blew and after (ENCCP) after meeting their basic needs as to food and shelter they have little remain for purchasing other goods and services.

- Crops Income
The result in table 5.35 shows that there significant difference between before and after (ENCCP) they have more access to cultivation and agricultural information for new technology and new seeds introduced through (ENCCP) especially ground nuts adopted by men and subsidies

The traditional gender based division of labour is breaking down and farmwomen are increasingly under taking tasks previously done by men this mentioned by farmers. The evidence from respondents are emerging that the area suffer from significant gab between their potential and actual productivity and the productivity gab of poor women is much wider then that of men because of explicit gender bias in credit.

Table 5.10 Differences between before and after (ENCCP) in crops incomes in En Nahoud Area

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>Std error diff</th>
<th>Tuvalu</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>The income from millet before (ENCCP)</td>
<td>36326.087</td>
<td>35775.2203</td>
<td>209959.63</td>
<td>21967.376</td>
<td>8.435</td>
<td>.000</td>
</tr>
<tr>
<td>The income from millet after (ENCCP)</td>
<td>246285.71</td>
<td>183793.92547</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from sorghum before (ENCCP)</td>
<td>114094.20</td>
<td>90344.57223</td>
<td>302074.09</td>
<td>10876.208</td>
<td>10.490</td>
<td>.000</td>
</tr>
<tr>
<td>The income from sorghum after (ENCCP)</td>
<td>416168.29</td>
<td>323640.71069</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from sesame before (ENCCP)</td>
<td>.0000</td>
<td>.000</td>
<td>571155.9420</td>
<td>13563.569</td>
<td>4.211</td>
<td>.000</td>
</tr>
<tr>
<td>The income from sesame after (ENCCP)</td>
<td>57115.942</td>
<td>112667.46180</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from ground nuts before (ENCCP)</td>
<td>231463.77</td>
<td>209666.65277</td>
<td>1392963.8</td>
<td>25240.899</td>
<td>9.170</td>
<td>.000</td>
</tr>
<tr>
<td>The income from ground nuts after (ENCCP)</td>
<td>1624427.5</td>
<td>2151648.3067</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from legumes before (ENCCP)</td>
<td>5.1449</td>
<td>14.13306</td>
<td>221268.12</td>
<td>1.70142</td>
<td>3.024</td>
<td>.004</td>
</tr>
<tr>
<td>The income from legumes after (ENCCP)</td>
<td>221268.12</td>
<td>232323.40826</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from Karkady before (ENCCP)</td>
<td>10188.406</td>
<td>61088.23786</td>
<td>12652472.3</td>
<td>7354.1596</td>
<td>1.385</td>
<td>.170</td>
</tr>
</tbody>
</table>
The income from Karkady after (ENCCP) 1266260.9 2517105.607
The income from Vegetables before (ENCCP) 350.8696 2767.62603 159917.26 333.18302 1.053 .000
The income from vegetables after (ENCCP) 150268.12 143377.34509
The income from Water melons before (ENCCP) 149514.29 158729.44284 7775.57 18971.797 7.881 .000
The income from Water melons after (ENCCP) 157289.86 300983.47871
Sources: Data survey 2003

Table 5.10 Differences between before and after (ENCCP) in Farmers incomes in En Nahoud Area

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>Std error diff</th>
<th>T.value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The income from Agricultural before (ENCCP)</td>
<td>1646449.3</td>
<td>1509980.7901</td>
<td>1689586.6</td>
<td>253384.86</td>
<td>6.668</td>
<td>.000</td>
</tr>
<tr>
<td>The income from Agricultural after (ENCCP)</td>
<td>3336035.9</td>
<td>2997523.4</td>
<td>.561594.2</td>
<td>213755.30</td>
<td>2.606</td>
<td>.011</td>
</tr>
<tr>
<td>The income from none Agricultural before (ENCCP)</td>
<td>1089420.3</td>
<td>1150084.2476</td>
<td>331439.86</td>
<td>572256.91054</td>
<td>4.811</td>
<td>.000</td>
</tr>
<tr>
<td>The income from None Agricultural after (ENCCP)</td>
<td>1651014.5</td>
<td>995170.90600</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The income from Animals before (ENCCP)</td>
<td>511034.06</td>
<td>867213.67832</td>
<td>331439.86</td>
<td>572256.91054</td>
<td>4.811</td>
<td>.000</td>
</tr>
<tr>
<td>The income from Animals after (ENCCP)</td>
<td>179594.20</td>
<td>319454.05261</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Data survey 2003
Land:

The result in table 5.9 revealed that there is significant difference between land under crops before and after (ENCCP), this is indicated that the respondents who were the intended beneficiaries of the (ENCCP), found that it easier to understand what was involved and there to claim their entitlements from land authorities. When, there is more significance differences between total land owned by farmers and under crops before and after (ENCCP) this leads to large farms owned sensitive to new technology as large farms, and leads even more successful in rising the productively of their own land. While the impact of large land ownerships patterns and tenure systems on land use, productivity and the surplus of land well – endowed to farmers who have not large land like divorces and separated women and share cropping emerged, where this is indicates that there is popular belief that En Nahoud area has surplus of land and that new areas can easy be brought under cultivation.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean under crops before (ENCCP)</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>Std error diff</th>
<th>T. value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total area under crops before (ENCCP)</td>
<td>40.4946</td>
<td>41.05129</td>
<td>7.3911</td>
<td>4.70542</td>
<td>10.177</td>
<td>.000</td>
</tr>
<tr>
<td>Total area under crops after (ENCCP)</td>
<td>47.8857</td>
<td>39.36840</td>
<td>7.3911</td>
<td>4.70542</td>
<td>10.177</td>
<td>.000</td>
</tr>
<tr>
<td>Total land owned by the farmer</td>
<td>81.7681</td>
<td>63.08797</td>
<td>33.8824</td>
<td>7.59490</td>
<td>10.70</td>
<td>.000</td>
</tr>
<tr>
<td>Total area under crops before (ENCCP)</td>
<td>47.8857</td>
<td>39.36840</td>
<td>33.8824</td>
<td>7.59490</td>
<td>10.70</td>
<td>.000</td>
</tr>
<tr>
<td>Total land owned by the farmer</td>
<td>81.7681</td>
<td>63.08797</td>
<td>33.8824</td>
<td>7.59490</td>
<td>10.70</td>
<td>.000</td>
</tr>
<tr>
<td>Total area under crops after (ENCCP)</td>
<td>40.4946</td>
<td>4.05129</td>
<td>41.2735</td>
<td>4.90657</td>
<td>8.253</td>
<td>.000</td>
</tr>
<tr>
<td>Total area under crops after (ENCCP)</td>
<td>40.4946</td>
<td>4.05129</td>
<td>41.2735</td>
<td>4.90657</td>
<td>8.253</td>
<td>.000</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003 Item Concern of Subsistence Crops

* millet and sorghum

as it is shown in table 5.8 reveal that there is a highly significant difference between before and after financial services as in table 5.9, this could be attributed to increase productivity and secure consumption crops for their families, and according to respondents admitted that the number of women who fall in cultivation perform are more than that of men, and in this table also reveal that there is significant difference between before and after financial services in term of production, consumption, marketing and saving quality as in table 5.2 an this attributed to respondents mentioned that there is small amount from this subsidies crop for marketing and large amount saved for
household consumption and to meet any disasters until next season this attributed to traditional crops have comparatively low input requirement, also traditional crops can store well for up to three years, providing food security in time of drought and disaster.

**Item Concern of Vegetables and Legumes**
The evidence in tables 5.3 and 5.4 show that there is significant differences between before and after financial services in term of area under cropping especially Cow pea and Okra as the habitual food in area of study as main component of many dish meal and easy use in many ways in cooking, also can use green as well as dry as powders, diverse in several ways and easy store, in table 5.3 show that there is no significant difference between two period (before and after) in term of consumption near to fixed amount due to improve the quality variety of the Okra. the same tables reveal ed that there is a highly significant difference between two period in saving and marketing this indicates that there is increase in production cover the need respondents household and surplus for marketing after saved sufficient amount due to mentioned of the respondents.

**Item Concern of Groundnuts and Watermelons:**
The result in tables 5.5 and 5.6 that there is a highly significant services between two period before and after financial services in the items of area under groundnuts and watermelon cultivated by respondent in the study area. Farmers increased area undertow crops by reasons increase the production, to provide food for both family and animals also income, because groundnuts and watermelon seeds bring high income as cash crops and this income supply of social services’ health as medicines, education as boarding fees and clothes, and to meet basic needs tea, sugar meat, water., This tables also show that there is significant different between two periods in tem of production and consumption, this attributed to desire of farmers to improve their life’s and generate enough money from their production to avoid poverty and deprivation on the one hand and to meet human needs on the other hand, also control the gab between production an food consumption and to avoided chronic and transient food insecurity. The same tables indicates that there is a highly significant difference between two periods attributed to high production of crops.

**Item Concern of Sesame and Karkady:**
As are reflected in table 5.7 and 5.8 there is significant between two period in term of crop under are attributed highly prices per sack because sesame and karkady are cash crops generated high income but harvest process of karkady very difficult hard and high cost especially for those farmers fall under tenant share cropping harvest system payable in kind. thereby farmer under share cropping arrangement are found the production lower yield than others crops with fixed rent in cash. thus the farmers mentioned that the advance of fixing rents in cash rather their in kind, so that the farmers has the advantage of pating affixed amount to counteract the effect of inflation over time while under fixed rental tenant absorb the entire risk sharecropping harvesting system, it with the increase the area under cropping. in the same tables the result remaining that there are a highly significant difference between the two periods in term of production and consumption due to farmer realization of social values of sesame and Karkady and its role in rural social uses as medicines for treatment also the sesame and Karkady waste use as fodders, and store because in the rain season they have grass as fodder and other farmers said that the income because used as fuel and marketed by it in the cities because fuel in cities, also thstwo crops formulated and cook as food meal, so there is no significant difference between two periods in term of store seeds for next years.
Table 5.8 result of t. test of significance of the observed differences between before and after credits and financial services with respect to millet production variable.

<table>
<thead>
<tr>
<th>Variables group</th>
<th>Variables Name</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>T.value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area under millet</td>
<td>4.3000</td>
<td>2.85063</td>
<td>1.1455</td>
<td>7.837</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Millet production</td>
<td>3.1645</td>
<td>3.35433</td>
<td>2.6621</td>
<td>4.131</td>
<td>0.000</td>
</tr>
<tr>
<td>1</td>
<td>Total consumption from millet per production</td>
<td>1.4000</td>
<td>.64606</td>
<td>1.8786</td>
<td>8.635</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Total marketed from Millet production</td>
<td>3.2786</td>
<td>3.17672</td>
<td>1.4429</td>
<td>2.92236</td>
<td>2.6621</td>
</tr>
<tr>
<td>1</td>
<td>Total saved from Millet production</td>
<td>1.4493</td>
<td>4.32685</td>
<td>0.6926</td>
<td>2.782</td>
<td>0.007</td>
</tr>
<tr>
<td>2</td>
<td>Total saved from seeds from total saved</td>
<td>2.1419</td>
<td>13.27704</td>
<td>0.3286</td>
<td>0.47309</td>
<td>2.3236</td>
</tr>
<tr>
<td>1</td>
<td>Total saved from marketing from total saved</td>
<td>.0857</td>
<td>.30413</td>
<td>.01014</td>
<td>5.811</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Sources: Data survey 2003

Table 5.9 result of t. test of significance of the observed differences between before and after credits and financial services with respect to sorghum production variable.

<table>
<thead>
<tr>
<th>Variables group</th>
<th>Variables Name</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>T.value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Area under sorghum</td>
<td>2.4143</td>
<td>2.92165</td>
<td>4.2571</td>
<td>7.077</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>sorghum production</td>
<td>6.6714</td>
<td>7.88729</td>
<td>13.7128</td>
<td>3.045</td>
<td>0.003</td>
</tr>
<tr>
<td>1</td>
<td>Total consumption from sorghum per production</td>
<td>4.4000</td>
<td>12.08832</td>
<td>18.1128</td>
<td>72.26187</td>
<td>14.362</td>
</tr>
<tr>
<td>2</td>
<td>Total marketed from sorghum production</td>
<td>3.4143</td>
<td>1.98905</td>
<td>5.9275</td>
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</table>
Table 5.10 result of t. test of significance of the observed differences between before and after credits and financial services with respect to vegetables production variable.

<table>
<thead>
<tr>
<th>Variables</th>
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<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean different</th>
<th>T.value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area under vegetables</td>
<td>1</td>
<td>0.2214</td>
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<td>7.162</td>
<td>0.000</td>
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<td>3.1645</td>
<td>3.35433</td>
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</tr>
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<td>vegetables production</td>
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<td>0.1250</td>
<td>0.21330</td>
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<tr>
<td>Total marketed from vegetables production</td>
<td>1</td>
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<td>Total saved from vegetables production</td>
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<td>1.25942</td>
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<td>0.94852</td>
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<td>Total saved from seeds from total saved</td>
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<td>0.000</td>
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<td>0.26115</td>
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<td>Total saved from marketing from total saved</td>
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<td>0.94852</td>
<td>-0.2957</td>
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Sources: Data survey 2003
Table 5.11 result of t. test of significance of the observed differences between before and after credits and financial services with respect to legumes production variable.

<table>
<thead>
<tr>
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<th>Mean</th>
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<tbody>
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<td>0.52009</td>
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<td>legumes production</td>
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<td>Total marketed from legumes production</td>
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<td>Total saved from legumes production</td>
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<td>Total saved from seeds from total saved</td>
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<td>Total saved from marketing from total saved</td>
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Sources: Data survey 2003

Table 5.12 result of t. test of significance of the observed differences between before and after credits and financial services with respect to groundnuts production variable.

<table>
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<tr>
<th>Variables</th>
<th>Group</th>
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<th>Mean different</th>
<th>T.value</th>
<th>Sig.</th>
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<td>Area under groundnuts</td>
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<td>6.10773</td>
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<td></td>
<td>2</td>
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<td>Groundnuts production</td>
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<td>3.42576</td>
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<td>13.049</td>
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<td>Total consumption from groundnuts per production</td>
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<td>1.4000</td>
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<td>Total marketed from groundnuts production</td>
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<td>Total saved from groundnuts production</td>
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<td>1.39435</td>
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<td>Total saved from seeds from total saved</td>
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<td>Total saved from marketing from total saved</td>
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</table>

Sources: Data survey 2003

Table 5.13 result of t. test of significance of the observed differences between before and after credits and financial services with respect to watermelons production variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>group</th>
<th>Mean</th>
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<th>Mean different</th>
<th>T.value</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area under watermelons</td>
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<td>3.2754</td>
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<td>13.4746</td>
<td>18.74746</td>
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</table>
### Watermelons Production

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
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<td>Area under sesame</td>
<td>1.857</td>
<td>1.493</td>
</tr>
<tr>
<td>Total consumption from watermelons per production</td>
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<td>0.316</td>
</tr>
<tr>
<td>Total marketed from watermelons production</td>
<td>0.566</td>
<td>0.685</td>
</tr>
<tr>
<td>Total saved from watermelons production</td>
<td>0.1491</td>
<td>0.2525</td>
</tr>
<tr>
<td>Total saved from seeds from total saved</td>
<td>0.1449</td>
<td>0.3116</td>
</tr>
<tr>
<td>Total saved from marketing from total saved</td>
<td>0.1857</td>
<td>0.39168</td>
</tr>
</tbody>
</table>

### Sources

Data survey 2003

Table 5.13 result of t. test of significance of the observed differences between before and after credits and financial services with respect to sesame production variable.
Sources: Data survey 2003
In many cases however, transitory food security problems are experienced due to temporary decline in household access or enough food physical, biological or political causes.

The current rural household production responsibility system requires steady support and improved.

A food insecure household may loss access to require food and even face famine and hunger when one or more of component of entitlement break down.

Common obstacles to access are war civil, strife, poor infrastructure, access to employment and production and poor access to household food security, inadequate logistics for food distribution and market imperfections.

Such problems are not likely to exist financial services for the poor focused on access to credit and improving access to their the production to meet their consumption needs and reduced the poverty.

1.3 The scope of the study

The scope of this study is limited to investigate the contribution of rural financial services, for alleviation of food insecurity and poverty, to embrace the essential component of household food security namely access to increase agricultural production and sustainability of access provide a well, focused scope for discussing rural finance services and assessment of household food security and poverty.

The study want conducted in the western Kordofan in En Nahoud area.

1.4 Objectives of the study

1. To identify the impact of IFAD’s rural finance services on household food security and poverty irradiation as objectives of En Nahoud Western Kordofan Province project.
2. To investigate the major factors affecting agricultural credit needs and of IFAD’s financial system ability to meet these needs.
3. To determine the effectiveness of financial system and constrained to the production in En Nahoud province.
4. To assess the capacity for saving and marketing and consumption among rural people on En Nahoud Province.
5. To generate recommendations based on research findings for improving rural finance services.

1.5 Justification

It is important to provide information and setting up rural financial services and credit system for the poor population as well as improving sustainable agricultural production for ultimate goal is to raise standard of living.
And to ensure food access, an adequate amount of food must be within the physical reach of vulnerable households whether through their own production or through the market. Household food security can be ensured only when the capability to acquire food exists.

A household acquires access to food through its own production, income generation activities (i.e. wage employment or trade).
Chapter six
Summary Conclusion and Recommendation

This study is designed to assess the extent of impact of IFAD program of financial services to alleviate food insecurity and poverty in En Nahoud area. The study analyses two periods that before and after (ENCCP). Agriculture is the main source of income in En Nahoud areas. Farmers are partners practicing other occupations such as herders. Petty trading as well as labour and product different crops as local foods as cash crops, the study concentrated in production of crops, income, household consumption, food security, area under crops saving and marketing.

6.1 Summary of the Finding and Conclusion: -

The results found the period after (ENCCP) significantly different form before (ENCCP) in food security stats in term of area under corps, farm product, and income and household consumption. Moreover the study found no significant difference between the two periods in the market transportation and crop residue uses. Farmers in En Nahoud were found to be originally similar in general characteristics, but they changed to significant levels after their exposures to agriculture and income through (financial services). Farmers are more exposed to agriculture services sources (financial and extension services) after IFAD program started and the process of financial services has been an important factor contributing to improvement in farm income, the standard of living and enhanced food security. There is a significant different between before and after in the contact to rural organizations and associations. IFAD was the main source of rural financial services in combination with other complementary training and social services, presumably to improve the benefits of credit access for alleviating poverty, also the real challenging was modified the survival
strategies of poor so that they were better able to cope with risk through mixed farm and non-farm activities. Which was diverse and stabilized their sources of income.

The results showed that during the period before (ENCCP) the degradation of the environment impact on the poor small holders was more than the period after the results showed that improved access to financial services could yield significant improvement in income and food security for the poor. Also the study found that the welfare impact of financial services was positive and significant because of the effect of credit program participation on assets holdings of the household consumption and food security status. The level of farmer’s knowledge, attitude and behaviour towards modern innovation (improve and new variety seeds) and the rate of adoption of innovation are high among farmer. This proved that access to agriculture extension sources increase farmers knowledge.

The result indicated that the farmers started the activity to transfer and disseminate the new and improved seeds and ideas to the other farmers. Thus the transfer of technology and dissemination of new ideas among all farmers in the area had been to be successful in the first 4 years through their exposure to agricultural extension.

The study found farmers that have greater score for the reasons of adoption of modern innovations for cash crops (groundnuts) and local food grain (Sorghum).

The study found that the credit was provided to specific cash crops (groundnuts) while not ignoring the demand for credit for other arm and non-farm enterprises as well as for stabilizing food consumption.

The result indicated that the farmers increase agriculture productivity and off-farm income by improving the ability of the
household to stabilize their income and food purchasing power and achieving household food security and achieving a critical objective of IFAD financial services.

The result reveal that markets alone do not always provide the best solution through which goods and services may be provided at prices above their minimum cost level of production and consumption may be below social optimum, and defining appropriate public and private rates in potential market failure, and consideration of the most effective and efficient actions by the state the overcome such failure to achieve social objectives such as poverty reduction.

The result finding that the IFAD through (ENCCP) supported to off-farm sources of income had grow in importance particularly in En Nahoud area. Provided that long-term financial services that focus on the needs of the target group still remain largely unresolved problem. Such financial services cannot subsidy indefinitely and only make sense when combined with advisory services, which are after manpower and cost intensive.

The result found that rural organizations and associations, which were, introduce to area through (ENCCP) are essential mechanism by which people participated in the planning and monitoring of the financial services and loan provided by the International Fund for Agricultural Development (IFAD) to the government of countries to assist small farmers to design and implement activities in cooperation with the rural organizations. The experiences gained may be useful for the planning of new development projects.

The result identified that woman are only able to make small profit from the sale of crop o raw materials for processing local markets addition to work n the fields
The result revealed that the incidences of hunger, famine and food insecurity were higher in En Nahoud area before (ENCCP). This situation was not charged until the International Fund for Agricultural Development took especial interest in economic progress. The failure of farmers to provide food security for shown in all the general economic and human development, indicate the low income of respondents and the low levels of crop production.

The result showed that changes in agricultural production played an important role in changing the paradigm of agricultural development and sustainable agriculture production. The (ENCCP) put an end to the unilateral transfer of technology from local variety to improved variety. The helped farmers to re-discover traditional knowledge and supported a technology development based primarily on local resources. Prominent sectors of technology development are agro-forestry.

The study found that the agricultural financial services have proven successful in effectively stopping greatly reduction natural resources degradation and the intensity agricultural production. The experimental work of the (ENCCP) has given suitable technology and new initiatives an end the justification for such initiatives to be clearly recognized by the farmers themselves.

The study found that because of their dependence on agriculture, rural household are exposed to particular risks are subject to wide fluctuations in income, Saving of crops and income from and non-farm activities are formed in order to have money available in emergency cases (illness, accident. Sudden loss of income). The played prominent roles, especially among farmers who have no access to asocial security system and are exposed to particular risks.

The result found that the level of consumption of farmers in the household insure savings to help to finance consumer goods and capital
gods planned for long term. They are also used to offset any regular fluctuation in income.

The result showed that the farms after (ENCCP) combined varies forms of savings in order to ensure an optimal interim allocation of resource.

The result showed that food in continuously available in the local markets where the household do not produce the necessary quotation of food themselves after (ENCCP). This is a significant different once and before that there were large numbers of food-insecurity household in En Nahoud. This indicated domestic production of food was adequate for normal food requirement.

The average incomes of farms at households are found to be increase after (ENCCP). However, it was revealed that the income generated through agricultural production output and groundnut is an important source of income in the area.

The study found household food security and the capability to acquire food existed after the (ENCCP) through their own production, income generated activities (petty trading, wages employment) ownership of assets and transferred from external sources. The relatives importance of the households command over the total of these resources, enables them acquire enough food on a continues basis.

The result found that the majority of the farmers increased production and supply of food and improved its distribution and formulate diverse status over time in the fact that both the total production and household consumption of majority food items increased.

Land, livestock and other production materials were owned collectively. The study found that (ENCCP) had impact on farmers and promoted agriculture by science and technology, and created addition production bases for commercial food (cash crops) and increased the
number of cereal grain bases. The implementation of (ENCCP) introduces three dimensional production systems of grain, cash crops and income generation activities. Areas planted in feeds were enlarged and the integration of agricultural with animal husbandry was strengthened to an extent that incentive increased for these crops and their incomes have risen.

The study found that market failures and missing markets as a result of inadequate financial services, poor infrastructure, absence of extension and high costs of transport, have certainly reduced the level of income below that which price-oriented adjustment had promised. The result found that the adoption of new crops (dura) and diversification among small holder farmers was incompatible with maintaining and improved household food security when more crops are included in the new crops mix. The main concern is that food availability to smallholder farm households is affected by the displacement of food crops by cash crops. It has been postulated that the household vulnerability to food insecurity and dietary inadequacy were increased particularly when household food availability do not change much. Household yield per feddan are often higher for production of cash crops than for basic food crops. Thus household daily energy requirement, particularly those of women and children, was raised. Increased female employment leads to reduce children care with detrimental nutritional consequences for small children. On other hand, the result fond that the need to migrate seasonally to find off-farm employment is likely to be reduced when cash crops are introduced with positive benefits resulting farm more social interaction with in the household.

6.2 Recommendation

In terms of infrastructure access to markets both for cash cops and for marketed shares of food crops could be increased if rural roads are
planned in areas here large numbers of holder farmers are concentrated rather than where large production unites are located. Product collection facilities should be community–based to facilitate product marketing, as should be small-scale irrigation work. Action to empower women in smallholder households through training in technical, leadership and organizational skills may contribute to changing roles with in the household and control by women over greater share of household income. Farmers cooperatives can operate in any one or all of the following areas. Production, processing, marketing, consumption and credit and saving. Collective marketing generates marketing power and opportunities for market diversity, thereby increasing prices stability for farmers. Integration of production, processing and marketing can capture economic benefits because of economic of scale and higher net return to farmers. Consumer cooperation lower food prices, while financial cooperatives can allocate credit on terms that are not purely commercial. Strategic should be strengthen education and nutrition to change nutritional knowledge and behaviours could be more effective to community members ability to solve problem and to mobilize social energy in grassroots community development. Social health and nutrition education programs can apply to activate participation. Training should be providing for the targeted groups in order to familiaris them with tier tasks and enable them to administer the fund at a later stage. Every fund needs a decision-making credit committee in which the target groups play a tangible role.
Small-scale agricultural development is control to the elimination of poverty and hunger in developing countries. This is widely recognized, but a proper strategy to achieve it has been lacking. So the farmers organizations need action plans that is a key role for farmers organization in mobilizing the self-help efforts of rural people and adopt policy statements and action plan to combat poverty and promote sustainable development.
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