

**SUDAN UNIVERSITY OF SCIENCE AND  
TECHNOLOGY  
COLLEGE OF GRADUATE STUDIES**

***Assessment of Socio-Economic Impacts on Rural  
Development Programs on Livestock Sector***

***in Blue Nile and Sennar States - Sudan.***

**تقييم الآثار الاجتماعية والإقتصادية لبرامج التنمية الريفية علي قطاع  
الثروة الحيوانية في ولايتي النيل الأزرق و سنار- السودان**

***BY***

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بِسْمِ اللَّهِ الرَّحِيمِ الرَّحِيمِ

قال تعالى:

" الَّذِي جَعَلَ لَكُمُ الْأَرْضَ مَهْدًا وَسَلَكَ لَكُمْ فِيهَا سُبُلًا وَأَنْزَلَ مِنَ السَّمَاءِ  
مَاءً فَأَخْرَجْنَا بِهِ أَزْوَاجًا مِّن نَّبَاتٍ شَتَّى (53) كُلُوا وَارْعَوْا أَنْعَامَكُمْ إِنَّ  
فِي ذَلِكَ لَأَيَاتٍ لِأُولِي النُّهَى (54) "

صدق الله العظيم

(سورة طه)

## **DEDICATION**

*I dedicate this work*

*To my entire family especially my father,*

*To my dearest husband, Mohamed Elamin, for his encouragement and  
patience during my study, I love you and our sons and daughters.*

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## ABBREVIATIONS

AMA	American Marketing Association
BNS	Blue Nile State
CAADP	Comprehensive Africa Agriculture Development Program
CAHWs	Veterinary Animal Health Workers
CNFA	Cultivating New Frontiers in Agriculture
CPA	Comprehensive Peace Agreement
CDF	Community Development Fund
DLM	Damazin Livestock Market
ECA	Economic Commission for Africa
FAO	Food and Agricultural Organization
JAM	Joint Assessment Mission
GA	Grant Agreements
GDP	Gross Domestic Production
GoNS	Government of National Unity of the Republic of the Sudan
GoSS	Government of South Sudan
IED	Independent Evaluation Group
IGAD	Intergovernmental Authority on Development
Lao PDR	Lao Peoples' Democratic Republic
LCCs	Locality Coordination Committees
ILPMP	Improving Livestock Production & Marketing Project
ILRI	International Livestock Research Institute
LIU	Locality Implementation Unit
LVO	Locality Veterinary Officer
MDGs	Millennium Development Goals
MEO	Monitoring & Evaluation Officer
MOLFR	Ministry of Livestock, Fisheries and Rangelands
OED	Office of Economic Development
OIE	World Organization for Animal Health
PCU	Project Coordination Unit
PIU	Project Implementation Unit
PSC	Project Steering Committee
RIM	Regional Implementation Meeting
SLM	Sinjah Livestock Market
SS	Sennar State
USAID	United States Agency for International Development
VDCs	Village Development Committees
WANA	West Asia North Africa region
WB	World Bank
WBUN	A World Bank-United Nations
WFP	World Food Program
WHO	World Health Organization
WTO	World Trade Organization

## **ABSTRACT**

Livestock play multiple roles in the livelihoods of people in developing communities, especially the poor. They provide food and nutrition, work, economic and social status, and ensure environmental sustainability. Unfortunately Sudan livestock sector in general is poorly organized and specifically small ruminant (sheep and goats). The owners are only smallholders and resource poor; because of this it is difficult if not impossible for them to access credit for increasing their income and herd size. This study is carried out to assess the impact of the Improving Livestock Production and Marketing Project (ILPMP) (restocking sub-project and rehabilitation of livestock markets) which gave smallholder livestock farmers access to credit in order to improve their incomes and livestock marketing.

A desk study was first done to review literature then a field survey was conducted to collect the primary data using a questionnaire, interviews and group discussion. Data were collected from the project beneficiaries, non-beneficiaries and livestock markets intermediators. ILPMP staff monitoring and evaluation unit, and LIUs group leaders were interviewed and communities' group discussion was undertaken.

The research revealed that, the project activities on target rural communities have great social and economic impacts. Economically there was increase in the beneficiaries' income; increase in herd size and some of beneficiaries improved their houses. Socially there was communication and social relationship, education and jobs creation and some of beneficiaries get married. Restocking project has great impacts on improving communities livelihood and surrounding environments through other project activities like water subprojects which provide the areas by safe drinking water, and

reduced costs of water for livestock and household use, also improving of education and health.

The rehabilitation of livestock markets project attracted the traders, and helped in the recovery of the livestock trade and increased livestock export rates, in addition to free access to market price information through livestock markets database. Also the rehabilitation of livestock markets lead to the organization of the livestock market regulations and help on the development of the surrounding area.

The research revealed that, the marketing system is dominated by middlemen and the livestock chain is affected by the livestock market intermediators. This affected the marketing channels and lead to increasing livestock prices. The study concluded that the programs launched by the Ministry of Livestock, Fisheries and Rangelands (MoLFR) are commendable and worthwhile for the economic, social and environmental impacts at the individual, household and community levels.

Finally, this study recommended the need for extending of rural development programs to involve more rural and poorest communities in the country. More field training and raising of awareness to improve the skills of the rural communities in the target area especially on animal production, animal health and marketing system. This will help in achieving rural development objectives. There is need to link the training to the opened credit opportunities for poor-resource households. MoLFR should consider the challenges in the marketing system specifically in market management to make these rehabilitated markets more attractive to producers. Livestock market' management and market' boards should work to decrease the number of intermediators involved in livestock marketing for the benefit of the primary producers. Encouragement of youth and women to enter livestock trade business and access to loans for livestock dealers. MoLFR together

with the States and localities should act to finalize livestock export infrastructure. The program should be based on participatory approaches where the beneficiaries should participate in the project cycle.

## المستخلص

تلعب الثروة الحيوانية أدواراً متعددة في تحسين سبل العيش في المجتمعات الريفية النامية، ولا سيما الفقيرة، حيث تعمل علي توفير الغذاء والعمل وتحسين الوضع الاقتصادي والاجتماعي. يفتقد قطاع الثروة الحيوانية بشكل عام للتنظيم السليم و على وجه التحديد المجترات الصغيرة (الأغنام والماعز). يعاني اصحاب الحيازات الصغيره من الرعاه والمزارعين من شح وفقر الموارد ولهذا السبب كان من الصعب ان لم يكن من المستحيل الحصول على الانتمان لزيادة حجم الدخل والقطيع. أجريت هذه الدراسة لتقييم تأثير مشروع تحسين الإنتاج الحيواني والتسويق التجريبي (إعادة بناء القطيع وتأهيل أسواق الماشية) والذي قام بتوفير الدعم لمربيي المواشيمن أصحاب الحيازات الصغيرة بالحصول على الانتمان من أجل تحسين دخلهم وتأهيل أسواق الماشية في ولايتي النيل الأزرق وسنار.

تم جمع البيانات من مصادرها الثانوية والأولية عن طريق اجراء دراسة ميدانية شملت المستفيدين وغير المستفيدين بولايتي النيل الأزرق وسنار بالإضافة الي الوسطاء التسويقيين بأسواق الماشية في كل من سنجه والدمازين وذلك باستخدام الإستبانة والمقابلات الشخصية مع المسؤولين بوحدة تنفيذ المشروع بالولايتين والمسؤولين بوحدة المتابعة والتقييم بالمشروع والمناقشات الجماعية بالمجتمعات الريفية المستفيدة.

وكشفت النتائج أن أنشطة المشروع على المجتمعات الريفية المستهدفة لها آثار اجتماعية واقتصادية كبيرة. اقتصادياً كان هناك زيادة في دخل المستفيدين، وزيادة في حجم القطيع و تحسين منازلهم. اجتماعياً تم خلق فرص العمل والتعليم كما ساعد الاتصال علي خلق علاقات اجتماعية ، كما ان جزء منهم تزوج بعد تحسين أوضاعهم المعيشية. مشروع إعادة بناء القطيع له أثر كبير على تحسين المجتمعات والبيئات المحيطة من خلال أنشطة المشروع الأخرى مثل مشروعات المياه التي وفرت المياه الصالحة لشرب الانسان والحيوان، والإستخدام المنزلي، كما عمل المشروع علي توفير خدمات الصحة والتعليم من خلال عائدات مشروع المياه التي ساهمت في تأهيل المدارس والمراكز الصحية. استقطب مشروع إعادة تأهيل أسواق المواشي التجار، وساعد علي انتعاش تجارة الماشية وزيادة معدلات التصدير، بالإضافة إلى حرية الوصول إلى معلومات أسعار الحيوانات بالأسواق من خلال قاعدة بيانات أسواق الماشية. أيضا إعادة تأهيل أسواق المواشي عملت على تنظيم لوائح أسواق الماشية وساعدت على تنمية المنطقة المحاطة.

وكشفت نتائج البحث أن الوسطاء يهيمنون علي نظام التسويق مما ينتج عنه تأثير سلسلة الماشية، وهذا يؤثر على قنوات التسويق، ويؤدي إلى زيادة أسعار الماشية.

أخيراً خلصت هذه الدراسة الي ان هناك حاجة لتوسيع برامج التنمية الريفية لإشراك المجتمعات الريفية والفقيرة في البلاد، المزيد من التدريب الميداني ورفع مستوى الوعي لتحسين مهارات المجتمعات الريفية في المنطقة المستهدفة خصوصاً في مجال الإنتاج الحيواني وصحة الحيوان ونظام التسويق مما يساعد علي تحقيق أهداف التنمية الريفية، كما ان هناك حاجة لتوفير فرص الائتمان للأسر الفقيرة. يجب علي وزارة الثروة الحيوانية والسمكية والمراعي النظر في التحديات في نظم التسويق وخاصة إدارة السوق لجعل تأهيل هذه الأسواق أكثر جاذبية للمنتجين. و يجب علي إدارة أسواق الماشية أن تعمل علي تقليل عدد وسطاء السوق داخل العملية التسويقية وقنوات التسويق. العمل علي تشجيع الشباب والمرأه للدخول في تجارة الماشية وتوفير فرص الائتمان للمهتمين بتجارة الماشية. علي وزارة الثروة الحيوانية والمعنيين بقطاع الثروة الحيوانية بالولايات العمل علي اكمال بنيات تصدير الماشية بأسواق الماشية، كما ينبغي أن يستند البرنامج على نهج التشاركية حيث يجب أن يشارك المستفيدين في دورة المشروع.



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

The World Bank Rural Development Strategy seeks to reach the rural poor and reducing the number of those who suffer from poverty by half by 2015 as stated in the Millennium Development Goals (MDGs). Also the World Bank efforts of development were directed to address the unacceptable reality of these rates of poverty in the rural area. It is clear that the Bank will not succeed in achieving its goals to reduce poverty rates in general unless they contribute to poverty reduction in rural areas due to the denial of those areas of health services, education and social services. To meet the MDGs, income opportunities in the rural area are to be significantly increased (Asim, 2008). About 70% of the world poor lives in rural areas, out of which 43% are living in the Middle East and North Africa (WB, 2008). In the Sudan, the rural population account to more than half (56.5%) of total population (WB, 2008), which makes the development need very imperative on rural areas, providing more income opportunities and improve living conditions. This leads to alleviating the pressure of migration from the rural area to the cities and creates an attractive environment for business (Asim, 2008).

The consequent economic changes associated with the rural development were significant to the advancement of the economy. Decision makers can direct investments to development programs work which will reflect positively on the citizen and on the country in general.

Sudan is one of the three countries proposed to secure world food. Its large diversified animal wealth will act as a backbone to Sudan economy if it receives more attention. The world demand for naturally produced animal products makes Sudan a promising world animal products supplier, yet many impeded stem behind underutilization of animal resources. The low off take

from the national herd was attributed to traditional production practices and poor marketing infrastructure.

## **1.2 Improving Livestock Production and Marketing project-A pilot (ILPMP)**

According to WB report (2013) Sudan is inhibited by 26 million in 2013, the country experienced a protracted period of internal conflict between the North and South over resources and differences in cultural vision. Decades of the conflict and neglect in Sudan made the 2005 Comprehensive Peace Agreement (CPA) set high expectations for a quick peace dividend. A World Bank-United Nations (WBUN) Joint Assessment Mission (JAM) recognized that the livestock sector would be crucial to develop rural areas and sustain peace. To coordinate donor funding for Sudan's reconstruction and development needs, two Multi Donor Trust Funds were established, one for the Government of National Unity of the Republic of the Sudan (GoNS) and the other for the Government of South Sudan (GoSS). Donors and Government requested the World Bank to administer the two MDTFs due to the high degree of fiduciary compliance that the Bank's procedures would bring. Similarly, the Bank's support for using Government's own systems to implement projects was considered key to help build capacity through learning by doing.

The MDTF for the Republic of the Sudan (MDTF-NS) aimed to consolidate peace by supporting key CPA commitments, and supporting recovery and development in war-affected and marginalized areas in the Northern states which covered by the MDTF-NS (Abyei, Blue Nile, South Kordofan, North Kordofan, Red Sea, Sennar and White Nile state).

The project's objective is to improve livestock production and marketing in selected rain fed areas of Central and Eastern Sudan.

The project is designed and structured around pilot activities that address priority needs in support of livestock production and marketing. This project

was proposed to demonstrate different ways to deliver services and improve pastoralists' livelihoods.

Key indicators of project progress include:

- Number of subprojects supporting livestock- dependent livelihoods;
- Number of vaccinations delivered by private vets;
- Increase in animals traded in markets rehabilitated under the project;
- Completion of study on constraints to natural resource-based conflict mitigation.

According to the Draft Final Project Proposal (2007) the total proposed project cost is US\$ 20 million, of which the Government will finance US\$12 million and the MDTF will finance US\$ 8 million. The cost for Phase 1 (Year 1 and Year 2) is US\$ 7.7 million, of which the Government will finance US\$ 3.7 million and the MDTF US\$ 4.0million.

The project aims to test pilot approaches to improve livestock production and marketing. Supporting livestock production and marketing in central and eastern Sudan localities where a substantial number of livestock for the domestic and export markets are produced and collected could help identify options to: a) improve livestock producers' incomes, and b) increase supply and competitiveness of livestock on domestic and international markets.

The project will also identify processes that would support the establishment of community dialogue and partnerships to resolve land and natural resource access issues in a sustainable manner and, reinforce customary administration's involvement for a more equitable land and natural resources allocation and conservation. This will have beneficial impacts on livestock and crop productivity and reduce conflict occurrence.

The investment fund will provide matching grants to finance activities and technical assistance demanded by pastoral communities that are related to increasing productivity and sales of livestock. To be eligible, subprojects will have to demonstrate that they are demand-driven, i.e. designed and

implemented by cohesive community-based groups or organizations, and that they are economically, socially, technically and environmentally sustainable. Examples of subprojects include water point rehabilitation, rangeland development, stock route demarcation, livestock fattening, advisory services for improving herds.

Technical Assistance will be provided to mobilize pastoral communities, stimulate the formation of self-help groups (e.g. savings and credit groups) and reinforce existing ones, and to identify and design priority livestock-development subprojects. Training will be provided for relevant local authorities (e.g. locality range and pasture management, livestock extension Services, State Water Corporation) to support implementation and supervision of the subprojects (WB, 2013).

The MDTF National Community Development Fund (CDF) is active in Blue Nile (including Roseires Locality) and is expanding to North Kordofan; it empowers communities to develop core social services with the support of local government. While the project would build on experience and systems developed under the CDF, it will primarily support livelihood enhancement interventions, hence complementing the CDF. The project will take into consideration the existence of enabling conditions and synergies with other development interventions: coordination with IFAD projects in greater Kordofan and the EC funded-SPCRP in Blue Nile will be ensured to avoid duplication, harmonize approaches and maximize impact (WB, 2013).

### **Institutional and Implementation Arrangements**

MoLFR had an overall oversight on the Project through a Project Coordination Unit (PCU) established in MoLFR's Directorate for Planning and Economics in Khartoum. Project execution was the responsibility of two Project Implementation Units (PIUs) established in the respective State Ministries of Agriculture, Animal Resources and Irrigation at Sennar) and El Obeid. Locality Coordination Committees (LCCs) were established in each

of the 6 localities with the primary responsibility of implementing the LDIF. At each level (federal, state and locality), there were committees to provide direction and guidance to project implementation (WB, 2013).

### **1) Project Coordination Unit**

The PCU was headed by a Project Coordinator nominated by MoLFR, an Assistant coordinator and staffed with a consultant Monitoring & Evaluation Officer (MEO), a consultant Financial and Administration Officer (FO), a consultant Safeguards Officer and a consultant Project Procurement Specialist. All consultants were recruited on a competitive basis. The PCU was tasked with:

- Facilitating preparation of annual work plans and budgets (AWPBs)
- Managing the project Special Account and counterpart Project Account, all related financial transactions and disbursement of funds;
- Overseeing all procurement and financial management activities and ensuring that all the;
- procurement and contracting arrangements are executed using appropriate guidelines;
- Providing timely quarterly progress reports of all project activities;
- Coordinating the baseline surveys and other studies (as outlined in the project description).

### **2) Project Implementation Units**

The PIUs were responsible for project execution. Key PIU staff includes a Coordinator (consultant), an Accountant, a Project Procurement Specialist, and Veterinary Officer (seconded from the state Governments) and support staff. Major PIU responsibilities include:

- Recruiting NGOs to implement project activities;
- Capturing lessons in localities so as to support cross-learning between localities;

- Managing project activities;
- Coordinating and liaising with localities, relevant state line ministries, NGOs and other agencies.

### **3) Locality Implementation Units**

The LIUs include a Coordinator, a Finance Officer and staff seconded from locality Range and Pasture, Animal Production, and Veterinary Administrations. Key LIU responsibilities were in the domain of the LDIF. LIUS will also be responsible for monitoring recruited NGOs. For all the 9 localities of North Kordofan, where privatization of veterinary services was piloted, a Locality Veterinary Officer (LVO) was allocated from the Locality Veterinary Administration to the project on a full time basis.

### **4) Project Steering Committee (PSC)**

The PSC was established in Khartoum to provide strategic guidance for the project and support the sharing of cross-state experiences. The PSC meet every quarter and comprised : Undersecretary MoLFR as Chairman, Director General Department of Planning and Animal Resources Economics as Rapporteur, Undersecretary Ministry of Agriculture and Forests, Director General International Cooperation-MoFNE, Director General for Development (MoFNE), Director General Animal Resources Research Corporation, Secretary General Higher Council for Environment, Chairman Sudanese Veterinary Council, Director Generals for Animal Resources in the four target states and the Project Coordinator. Specifically, the PSC was responsible for:

- Setting overall policy guidelines and directions for the project;
- Approving terms and conditions for employment of the PCU staff;
- Ensuring support for the project from all stakeholders and relevant constituencies;
- Approving the project's annual work plans, including operations and budgets;

- Approving amendments to the project's Operation Manual in consultation with the Bank;
- Reviewing progress reports prepared by the PCU and supervising the preparation of the mid-term review report and the implementation completion report;
- Approving and requesting for reallocations between and within budget categories;
- Approving and endorsing annual audit reports;
- Approving all reports submitted by the PCU to the Bank; and
- Closely monitoring project progress.

The PCU acted as the technical secretariat to the PSC.

#### **5) State Steering Committee (SSC)**

In each of the States, there was a State Steering Committee (SSC) responsible for facilitating project implementation. The SSC meet every second month and comprised of the Minister of MAARI as the Chair, Heads of the livestock departments of MAARI, State Pastoral Union, State Water Corporation (SWC), Land, Locality Commissioners and representation from the Farmers Union. The SSC ensured that impediments to implementation of project activities were eliminated, and reviewed project progress. Other SSC functions include:

- Mobilizing local government in support of project implementation;
- Coordinating between the project and other development programs and stakeholders working in the states;
- Depending on the nature of the deliverable, taking the necessary arrangements with the relevant state
- line ministry/authority to obtain the necessary permits and authorizations; assume responsibility for
- the assets delivered under the project;
- Reviewing and approving proposals for LDIF funding.

Secretariat services to the SSC were provided by the PIU

#### **6) Locality Coordination Committee (LCC)**

The LCC was chaired by the Locality Commissioner and was primarily be responsible for prioritizing and endorsing subproject proposals submitted under the LDIF and monitoring the progress of other project activities. The LCC meet on a monthly basis or as and when required. Representation to the LCC included locality department heads and community groups or associations. For the veterinary service privatization pilot in North Kordofan, an Advisory Committee was set up at the state level to provide guidance to the privatization process. The advisory committee comprised of representatives from the private veterinary practitioners, SMAARI, locality veterinary administrations and the Sudanese Veterinary Council. The LIU provided secretariat services to the LCC.

#### **7) Market Board and Village Development Committees (VDC)**

The project addressed critical elements of institutional change in the sector: participation of the private sector in delivering animal health services; creation and strengthening of multi-stakeholder (traders, producers, ensure in addition to localities) boards to manage livestock markets, with a focus on sustainability and increased transparency in market transactions; and creation and strengthening of Village Development Committees to manage community needs. The project required strong coordination among the three administrative levels – federal, state and locality – and the creation of new institutional arrangements, namely Market Boards and Village Development Committees. Likewise, the project implementation structure, set in parallel to the administrative levels (PCU, PIU and LIU), was demanding in terms of coordination needs and capacity creation, mostly at the sub-federal levels (WB, 2013).

The implemented program included:

A) Water harvest projects



- B) Veterinary services projects
- C) Restocking project; and
- D) Rehabilitation of livestock markets.

In the Eastern sector the sheep restocking project started by signing Grant Agreements (GA).The fund was distributed to the beneficiaries in kind. Each borrower had received 5 ewes and 10 lambs with slight variation due to differences in prices. The selection of the borrower depended on criteria that he or she suffer from poverty and/or lost their herds during war or famine, or they don't have a source of income and they were involved in marginal business.

For the marketing project a total of \$ 165,743 and \$158,735 were allocated to rehabilitate Damazin and Sinjha livestock markets respectively: considerable efforts were exerted by the project for the Sinjah and Damazin livestock markets, the rehabilitation include the animal pens, outer fence, electricity, veterinary unit , furniture, the bidding process and water yard.

### **1.3 Problem Statement**

Like other development programs implemented in Sudan the (*ILPMP*) did not received enough consideration in evaluating their outcomes. The matter that may result in repeating unsuccessful experiences or overcome successful ones. In the current case of (*ILPMP*), the World Bank together with Sudan government intervened through rural development programs to improve livestock production and marketing in Eastern Sudan. Although the proposed duration of (*ILPMP*) ended, yet the outcomes of the project were not evaluated. The current study aims to assess the socio-economic impacts of the project and its role in empowering the communities to achieve the rural development.

## **1.4 Justification**

There is a need to evaluate the impacts of ILPMP in achieving the development in rural communities and its socio-economic and environmental aspects; such evaluation provides basic information that helps the decision-makers in applying the experiences of the project to other regions of the country.

## **1.5 Research objectives**

**Main objective:** To assess the impacts of the rural development program of ILPMP-A pilot in Blue Nile and Sennar States on livestock production, marketing, livelihoods of the beneficiaries and the surrounding environment.

### **Specific objectives**

- A. To analyze the economic impact of the project on the beneficiaries.
- B. To analyze the social impact of the project on the different beneficiaries involved in production and marketing of livestock.
- C. To assess the welfare impact of the project on the surroundings communities (e.g health, education, water harvest.... etc).

## **1.6 Research hypotheses**

1. Rural development programs through Improving Livestock Production & Marketing Project (ILPMP) acted to improve the economic situation for the beneficiaries.
2. Rural development programs through Improving Livestock Production & Marketing Project (ILPMP) provided a better social life and strengthened the social network of the beneficiaries.
3. Rural development programs through Improving Livestock Production & Marketing Project (ILPMP) assisted in improving the welfare of the communities and their surrounding areas.

## **1.7 Time and Place of the research**

This research was conducted in Blue Nile and Sennar States between March 2012 to March 2015. Data collected during April - Desember 2014.

## **1.8 Research Organization**

The research is presented in six chapters:

- Chapter one: An introduction to the research. It contains background about the subject, the research problem, Justification, objectives (main and specific) of the research, research hypothesis and time and place of the research.
- Chapter Two: Reviews the literature related to the subject.
- Chapter Three: Presents the research methodology with regard to study area, method of data collection and the analysis of data.
- Chapter Four: Displays the results obtained.
- Chapter Five: Discusses the results obtained
- Chapter Six: Concluded the research and provides recommendation.

## **1.9 Limitations of the Research**

The study faced some challenges during the data collection process. Most of the livestock markets intermediators refused to answer the questionnaire.

Data collection became cumbersome as some of beneficiaries and non-beneficiaries kept avoiding the interview by being not available at the scheduled appointed time.

Data for Aljamam village at Altadamun Locality was not included in this study due to the difficulty in reaching the village in the rainy season.

# **CHAPTER TWO**

## **LITERATURE REVIEW**

This chapter reviews the literature related to the topic, mainly the issues of rural development, agriculture development with special emphasis on livestock and development particularly small ruminants and development, it also covers livestock marketing. Some experiences from livestock development programs worldwide were highlighted and some examples of project impact assessment models were included in the review.

### **2.1 Rural Development**

There are many definitions for rural developments are found in the literature. Moseley (2003) conceived that rural development in general is the process of improving the quality of life and economic situation for the people living in relatively isolated and scarcely populated areas. Whereas Ward and Brown (2009) considered the utilization of the natural resources including land is the core element in rural development.

However, Srinivas, (2014) argued that the conception of the agriculture as the leading sector for rural development has been changed as a result of urbanization and the emergence of tourism, niche manufacturers, and amusement as competing sectors for rural development. These have replaced resource utilization and agricultural practice as the main economic drivers. Accordingly a holistic approach should be adopted to develop the rural communities and that a wider prospective incorporating multiple goals needs to be realized, other sectors such as education, investment, physical infrastructure, and social infrastructure all play an important role in developing rural regions.

For Moseley (2003) the development of rural areas is better achieved when the economic development strategies are formulated on the basis of the local

circumstances. Meanwhile Chigbu (2012) stressed on the social and economic changes as the main drivers of the rural development.

Diakosavvas (2006) focused on the role of cultural factors and investment spirit in realizing the impetus of the agricultural sector in rural areas.

Apostolides (1997) defined rural development as the development of regions such as smaller settlements like villages, farms, as well as market towns in his definition he excluded the urban areas (towns and cities).

For Sani, Gray and Baker (2004) living with dignity for individuals and families is the ultimate goal of rural development. This dignity cannot attain unless there are sufficient incomes and employment opportunities as well as viable rural communities with a balanced structure of age.

Rural development indicates both the economic improvement of people as well as greater social transformation. The basic objective of all rural development initiatives/programs has been for the welfare of the millions (Srinivas, 2014).

## **2.2 Agriculture and Rural Development**

The area of agriculture and development attracts the attention of most of the international and regional organizations working in the field of rural and agricultural development. For they held many conferences, published papers and periodicals pertaining to the formerly mentioned issue. The World Bank (WB) report for the year (2008) indicated that agriculture is a vital developmental tool for achieving one of the MDGs – a new target for reducing the proportion of people suffering from extreme poverty and hunger by half by 2015.

The majority (87%) of rural people in developing countries depend on agriculture as a main source of livelihoods (Martin, 2004). Globally, livestock constitutes 40 percent of the agricultural gross domestic product (GDP) and 30 percent of the agricultural GDP in the developing world (WB, 2009). It was estimated that about 1.3 billion is poor people who live mostly

in the developing countries where they depend directly or indirectly on livestock for their livelihoods (WB, 2008a).

In the Middle East and North Africa about 43 % of the population lives in the rural areas. Where the poverty rates are extremely higher than in urban areas and accompanied by defected development and services witnessed in those areas. The rural sector acts as huge reserve of employment, as well as being a producer of food needed by the urban sector. The marked difference in life style between rural and urban one is considered as the most important reason behind the migration to urban sites and other countries. Often, this remains the mere reality due the complex system of support and protection of trade (SATCO, 2008).

The recent research paper by Derek, Xinshen and Chris (2005 cited in Schultz, 1964) pointed that in the eve of 1960s, a major reconsideration in developmental thinking argued for a central role of agriculture as a driver and motivator of growth, especially in the early stages of industrialization. The view of agriculture as having an active role was stimulated, to greater extent, by the emerging experience in Asia. The paper explained the two core contributions that Johnston and Mellor (1961) mentioned, traditional agriculture could be transformed rapidly into a modern sector through the adoption of scientific technology, and the strong growth connections and multiplier effects of agricultural growth with the nonagricultural sectors. Also the paper indicated that, Agriculture has strong, direct forward connections to agricultural processing and indirect backward ones to input-supply industries as Pryor and Holt (1999); Gemmell *et al.* (2000) pointed. It is clearly known that a large share of industry in the early stages of development is attributed to agriculture.

Based on the WB (2008b) agriculture is the corner stone for achieving economic growth and poverty alleviation in many countries. In Sub-Saharan Africa, agriculture is viewed as the prime option to enhance growth,

overcome poverty, and enhance food security. The growth of agricultural productivity is necessary, not only to stimulate growth in other economic sectors, but also to accelerate its pace. And that requires sharp increases in the productivity of agriculture arisen from small-scale production and associated with effective support, as millions of people are dependent on agriculture-based subsistence to live, and for many of them dwell in remote areas.

Agriculture is considered as the backbone of Africa's economy, there is about 70% of Africans and roughly 80% of the continent's poor live in rural areas and depends mainly on agriculture for their livelihood. The sector accounts for about 20 % of Africa's GDP, 60% of its labor forces and 20% of the total merchandise exports (Nchuchuwe and Adejuwon, 2012).

African countries represent also 50% of top 20 countries in terms of the share of total agriculture and total exported consumer goods in the world (ECA, 2007).

The report of the World Bank has shown that agriculture in the twentieth century has been an essential tool for sustainable development and poverty reduction, especially there are three from every four poor people in developing countries live in rural areas, 2.1 billion people living on less than \$2 per day and 880 million on less than \$1 per day and most of them depend on agriculture for their livelihoods (WB, 2008a).

Agriculture contributes to development in many ways. It supports the development as an economic activity; as a livelihood source and as a provider of environmental services making the sector a unique instrument for development, (WB, 2008b).

Also, it is important to mention that about 70% of the African population living on less than 1\$ per day are located in rural areas (WB, 2002) and they live in poverty which is considered as a rural phenomenon in the region. This

majority is generally unable to meet basic food and other needs and that is due to the continuous poor performance of the agriculture sector (WB, 2002). The World Bank report (2008a) shows that the real status of the agricultural sector cannot be displayed in the Sudanese records unless the country has adopted agriculture as an essential tool for sustainable development and poverty reduction, including it in the constitution and the laws.

### **2.3 Livestock and Development**

As Fahey (2007) stated livestock is vital to the economies of many developing countries, especially those in the Horn of Africa. His complaint that animals are the main source of protein for human beside their important role in providing income, employment and foreign exchange. For many low income producers, livestock are used to store the wealth, they provide draught power and used to fertilizer lands for crop production. Also, livestock act as means of transport and they constitute a vital social component for many practices and exchange. The consumption of livestock and their products is growing rapidly in the developing countries although it of started from a low base.

Bruinsma (2003) explained that livestock production contributes positively to economic development, rural livelihoods, poverty alleviation as well as securing food mainly animal protein for the fast growing demand in the developing countries, so the issue of promoting livestock production is pressing specially if we consider the global aim is to halve by 2015 and that most of the proportion of the world population living in extreme poverty are dependent partially, at least, on food and income derived from livestock.

According to Martin (2004) increasing livestock production is important for improving the income and welfare of the rural poor, for livestock enterprises to develop there is a need for more physical, financial and human capital in the form of husbandry knowledge and skills. Technological innovations would be suitable to better utilize the available resources. Moreover, the



access to market outlets and input delivery systems will greatly promote livestock production.

## **2.4 Small ruminants and Development**

Based on FAO (2015) livestock are important in supporting the livelihoods of poor animal keepers, traders and laborers in the developing world. Animal productivity, production and live animals trade are seriously affected by animal diseases which can also have a harmful impact on human health and consequently on the whole process of economic development. So it is important for small ruminant producers to know the normal and abnormal status of their animals in order to determine and address animal health care effectively (Madden, 2011).

Timon and Hanrahan (1985) pointed that small ruminant's production is a very significant component of livestock throughout the world and particularly in the developing countries. Sheep and goats have the ability to survive and produce in harsh environments whether being dry arid, high lands or extremely cold, small ruminants are generally efficient converters of forage feeds regardless to the climatic conditions. This fact beside their low production cost, small size, their suitability to small holdings and their three breeding purposes for meat, milk and fiber are their greatest advantage compared with large ruminants. Improving livestock production is better achieved through increasing the efficiency of the production process whether it is biological, structural/organizational efficiency or more effective use of basic feed resources rather than encouraging the increase of the number of the animals. They are believed that; unlike most other livestock species, the numbers of sheep and goats in the developing countries increase much more rapidly than in developed regions. This may reflect the particular ability of small ruminants to survive and produce on low cost feed, adapt to dry arid environments and more than anything else they reflect their suitability to the

small low-capital family farms in the developing countries that are so badly in need of extra food and additional income.

As explained by USAID (2006), sheep and goats are important sources of income in Western Asia and North Africa (WANA) which are semi-arid areas with less than 300 mm average annual rainfall. This is mainly because these animals feed on marginal lands and crop residues to produce milk and meat; they require low initial capital and maintenance costs. However, in spite of all mentioned merits, small ruminants usually receive relatively little attention from research workers in the WANA region, and the sector is often neglected by the main agricultural programs. Dubeuf (2007) revealed that dairy goats systems have an important social impact. Tsegaye (2009) stated that goats are easily adaptable animals, they adapt to survive and produce under adverse local environmental conditions (climatic stresses, poor quality feed, seasonal feed and water shortage, endemic disease and parasite challenge) which make them suitable for use in the traditional production system.

Duo and Bruening (2007) found that the extension workers are often not able to meet the needs of farmers, the extension staff-to-farmer ratio is estimated to be 1:1500. Small ruminant producers must be fully aware of that they are the front line of defense for identification and prevention from disease-causing agents (pathogens) that will affect harvesting, processing, handling, distribution, and marketing of animal-derived food and products in production systems (Madden, 2008).

Extension professionals can provide information to small ruminant producers to increase their awareness and knowledge of detecting and handling animal health issues (Holcomb & Muske, 2000; Barnes, Meche, Hatch and Dixon, 2009; Madden, 2010). These producers will be able to reduce current on-farm weaknesses, improve food safety and food security, as well as enhancing their capacities and knowledge for providing much safer and more

wholesome products for consumers (Madden, 2011).

(Stella, 2012) stated that there is inadequate training of extension personnel to a large extent, and extension workers have very little effect on agricultural development, which is lead to limitation in information dissemination and knowledge transfer to farmers. Beside this challenge of human resource development, there are also the challenges of inability to access credit and finance services for smallholder farmers to increase their production and influence the chain.

#### **2.4.1 Small ruminants in Africa**

Small ruminants have a great potential to affect the socio-economic development of the majority of African rural communities. Africa has a population of 205 million sheep and 174 million goats representing approximately 17% and 31% of the world total population of those animals, respectively (FAO, 1990).

The ownership of small ruminants in Africa differs from that of cattle. Only a small percentage of the population own cattle and they rear them mainly in the arid and sub humid zones and most people in rural areas own small ruminants. The ownership of small ruminants is regarded as an investment. They are sold to meet imposing financial obligations of the family or being slaughtered for consumption at home or at festivals.

The size of the animals makes them ideal for families. For they require little capital investment in buildings or other materials for their housing with low space and maintenance requirements. According to small ruminants` storage, or adequate transportation, they are suitable for family consumption in the absence of refrigeration. Besides their reproductive efficiency is high (Ademosun, 1988). In spite of the formerly mentioned, the animals are given little attention.

Sheep and goats play a significant role in the food chain and the whole livelihoods of rural households, where they are largely the property of

women and their children (Lebbie, 2004). These animals can be reared for various reasons such as income generation, religious purpose, household consumption, and hobby and as security against crop failure.

Small ruminants in Southern Nigeria are integral component of the household, where they contribute to the cultural, food and socio-economic life of the people. Traditionally, sheep and goats have served as means of ready cash and a reserve against economic and agricultural production hardships (Ozung *et al*, 2011).

Most poor farmers in Mali keep small ruminants as a main source of livelihoods. Hence, sheep and goats assets are key opportunities for smallholder of small ruminant to not only engage in income generating activities that enable them to escape from the poverty trap but also to consume animal source food that they could not afford to buy (ILRI, 2011).

#### **2.4.2 Small ruminants in Asia**

Two-thirds of the world's poor that fall below nationally defined poverty lines live in Asia and 479 million (65%) of them are poor livestock keepers who support a large part of their household welfare through keeping domesticated animals, in Southeast Asia, the comparable figures are 161 million and 62 million (38%) with great variation between countries, agro-ecological regions, and close or distant access to cities communities. Rural Southeast Asia is a countries with diverse cultures, economies and politics and they are characterized by mixed farming systems which described by their stable crop, (Sani, Gray and Baker, 2004).

Delgado *et al.*, (1999) pointed to the rapidly changing patterns of demand for livestock and its products, livestock production become an increasing constituent of the agricultural economies of Southeast Asia, the rural poor will benefit from these changes depends on how livestock can be integrated into developing markets with consideration to the potentially, negative effects of industrialized production in rural areas and the low price of

livestock products and that will benefit the rural poor as consumers as well as producers. There is a chance for small ruminants to play an important role in the access of smallholder farmers to the new markets.

Except of Indonesia, Southeast Asia was dominated livestock species large ruminants, pigs and poultry. Goats and sheep are relatively few. Their significance as being utilized from in several countries it is conceived that they get a high demand as small livestock and they can be well raised on low inputs and local resources. (Sani, Gray and Baker, 2004).

### **2.4.3 Small Ruminants in Sudan**

Historically, livestock have been the main pillar to Sudan's gross economy. Since 1999, livestock and its products (meat, hides and skins) have accounted for approximately 20 % of Sudan's annual Gross Domestic Product (Central Bank of Sudan, 2005).

Sheep are Sudan's number one livestock export animal. Sudan has approximately 52.3 million head of sheep (MoLFR, 2011). There are four main types of Sudanese sheep (Desert, Nilotic, Arid Upland, and Equatorial Upland) and seventeen breeds (El-Hag *et al*, 2001). Sudan Desert sheep forms more than 65 % of the sheep census in Sudan and nearly 100 % of Sudan's sheep exports (El-Hag *et al*, 2001; Mufarrih, 1991). Nomads, transhumant, and sedentary farmers raise sheep to produce meat and milk, and, to a lesser extent, skins (Abdelgadir *et al* 1998). Sudan exports live sheep and mutton mainly to Saudi Arabia beside small numbers being exported to other Arab countries such as: Libya, United Arab Emirates and Jordan.

Goat production is a promising business in Sudan that has wide ecosystem diversity and different social-economic zones. It has approximately 43.6 million head of goats (MoLFR, 2011). The North Sudan goats' total milk production is about 1,549,979 tons for human consumption (Behnke and Osman, 2012).

Despite the large size of the country's goat population, the productivity per unit of animal and the contribution of this sector to the national economy is relatively low. This may be attributed to different factors such as poor nutrition; prevalence of diseases; lack of appropriate breeds and breeding strategies and poor understanding of the production system as a whole.

Sheep and Goats are fed only on pasture grass that usually has a low nutritional value for most of the year. In addition to this, these desert grasses become very scarce in the period from February to June every year. This always led to a lengthy period of malnutrition that often culminates to starvation level for many of the animals. Even with this great lack in both the quantity and quality of the natural pastures, the nomads never practice supplemental feeding beside animals grazing from the range and, therefore, concentrate feeding is not utilized. The low level of nutrition on which these animals are maintained is obviously one of the main factors limiting their production.

## **2.5 Livestock Marketing**

Emam and Malik (2011) pointed that marketing is defined according to Emam and Dixie as "the series of services involved in moving a product or a commodity from the point of production to the point of consumption". Abbott (1984) pointed that agriculture marketing means the movement of agricultural produce from the farm to the consumer or manufacturer, includes handling, transport, processing, packing, grading and quality.

According to American Marketing Association AMA, (2008) "marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large".

FAO (1999) pointed that, a market structure that is made up of only a few buyers does not necessarily indicate that this market is not efficient. As other factors, such as volume of sales, should also be considered, the volume of sales may be not enough to support other buyers in the market. Also, the large investment in the facilities required for an efficient operation may not justify the issue of having more than a few buyers. So, a single buyer with a large facility providing significant economies of excellence may operate much more efficiently and at a lower cost than a large group of small, less efficient buyers.

The livestock marketing system starts with the primary producer and moves on through various stages of middlemen up to wholesale, retail, and export outlets. Sudan's major livestock markets operate on a "silent auction" system whereby the price for livestock is negotiated by a broker who communicates separately with a buyer and seller, animals are sold on group prices (not according to their weight), and the purchase price is known only to the buyer, seller, and broker (Aklilu, 2002). Animal supplies at terminal markets vary seasonally and are affected by armed conflict, environmental conditions, and political instability. Major production areas generally locate distantly from terminal markets with 600-1,400 km. Livestock are transported to those markets on hoof, by truck, or on rail. The primary producer may receive as little as one-eighth of the export (free on board) price (World Bank, 2003).

The marketing system in Sudan is dominated by middlemen (brokers). Aklilu (2002) described this chain where some of these brokers may work as independent small-scale traders (Jelaba) and some as agents (wakils) or sub-agents for the big traders. The brokers collect cattle and [small ruminants] from the scattered villages and sell them to another broker in the primary markets. The second broker may sell to a third broker in the same market or in a secondary market and this process goes on until the livestock are summoned into larger lots and then reach the terminal markets.

Livestock are said to be exchanged from hand to hand for a minimum of two and a maximum of six times between points of purchase and the final point of sale. At the final point of sale, animals are transported to Port Sudan for live export or slaughtered for domestic consumption or export.

The role of middlemen is widely perceived as a weakness in Sudan's marketing system, affecting producers, consumers, and exporters. Producers generally sell when they need cash, but under the current marketing system payments to producers are often deferred. Traders and brokers pass the risks of livestock sales to producers, who are sometimes paid only after a final sale, but not at all (Aklilu, 2002). Producers also may lack information about prices at the terminal market or at international one. This information could support their decisions to sell animals. Consumers are believed to suffer because middlemen and taxes are blamed for unnecessarily increasing the cost of meat in livestock-rich Sudan. As noted by The World Bank (2003), five major traders have traditionally dominated the terminal livestock markets in Sudan. While this is typical of many livestock markets in the world, the government's decision to give export concession for Sudan's trade with Gulf countries to only one trader has changed substantially the dynamics of both the domestic and export trade. This has badly affected the producer because competition for export quality animals has been weakened. This change in the export marketing arrangements for livestock to Sudan's main customers from a competitive manner to a monopoly will have immediate and long-term harmful effects on Sudan's livestock producers and cannot be justified on any basis. Those who will suffer most will be the poorer small scale producers (Fahey, 2007).

### **Calculation of Marketing Margins**

For calculating marketing margins it is necessary to know the following information about costs and revenues, (KIT and IIRR, 2008):

*Costs:*



1. **Variable costs:** these are costs that change according to the handled amount of production. For a livestock raiser, the variable costs include the costs of feed and vaccinations.
2. **Fixed costs:** these are costs that are independent of the amount traded. For the livestock raiser, they include the cost of stables and land.

*Revenues:*

The selling price of the production is the actor's revenue. It is the money earned through selling of the produce, plus any other income earned by selling by-products or waste.

*Profits and margins:*

Once we know the costs and revenues, we can calculate the financial positions. We look at:

Gross income or operating profit that is calculated by deducting variable costs from revenues:

$$\text{Gross income} = \text{Revenue} - \text{Variable costs}$$

*The gross margin* is the gross profit per unit of produce. This is calculated by dividing the gross income by the revenue earned from sales. Then multiply by 100 to give a percentage.

$$\text{Gross margin} = \text{Gross income} \times 100 / \text{Revenue}$$

In an ideal market situation, with perfect competition and transparent information, the size of the gross margin reflects the amount of labor, expenses and risks that an actor has put into the product. The higher the costs and risks, the higher the gross margin and that is a fair principle. Unfortunately, in the real world many markets are far from idealism. Monopoly markets or oversupplied markets put strong pressure on the gross margins of producers. Likewise, in so-called supplier markets, when produce is scarce, farmers' gross margins may rise at the expense of traders, consumers, and other companies downstream in the chain. When gross

margins are excessively high in a certain part of the value chain without a reasonable explanation, this may be an opportunity for intervention to make the chain more efficient (KIT and IIRR, 2008).

*Added value*: is the amount of value that each actor in the chain adds. It is the difference between the price the actor pays for the produce, and the selling price.

$$\text{Added value} = \text{Price received by actor} - \text{Price paid by actor}$$

*Value share*: is the percentage of the final, retail price that the actor earns. This is calculated as the added value divided by the final retail price. Then multiplied by 100 to give a percentage.

$$\text{Value share} = \text{Added value} \times 100 / \text{Final retail price}$$

KIT and IIRR (2008) explained that like gross margins, the size of the value share also reflects the amount of costs and risks that an actor has put into the chain – at least, in ideal markets. In addition, the distribution of value share tells us something about the type of product. When the consumer buys a product in, more or less, the same state as it left the farm, i.e fresh, unwashed, then there has been little value added in the chain. So we can expect the farmer to have the highest value share. However, when the consumer buys that same product in a processed form, such as cooled, flour in sealed, controlled-atmosphere packaging, then there has been more value added in the chain and we can expect downstream actors to have higher value shares. In any case, the gross margin and the value share are not meaningful by themselves. They need to be interpreted in relation to the costs and risks of the chain actors.

## **2. 6 Livestock Development Programs**

Livestock are an important component of the livelihood for rural poor and reducing malnutrition and improving their lives. Development of livestock can help in poverty reduction, environmental sustainability and food security. For that reason many organizations and institutes works to support livestock sector through rural development programs.

Many development programs based on livestock production with different objectives were implemented a cross the world. While some of these programs obtained fruitful results, the others failed to satisfy their objectives. Among these the Livestock development programs in Nigeria failed to significantly boost production and improve the nutritional status of the people. The lack of integration between crop and livestock subsectors was a general misfit between strategies and the existing local conditions. The country needs to prioritize its livestock development process and to focus on integrating livestock with arable farming and on proper use of material and human resources. The necessity for consultation with local people and ensuring that programs benefit from local knowledge and are fitting in ecological, social and economic terms is also stressed (Ega and Isitor, 1991).

The World Bank has supported a project in Botswana to help develop the livestock sector. The project had mixed results. While it succeeded in establishing an effective land-use planning system, it failed to change traditional management techniques, and did not reverse overstocking or land degradation, according to a performance audit report by (WB, 1997).

Lao Peoples' Democratic Republic PDR was well positioned to capitalize on the growing Asian livestock sector, however the extent livestock production in Lao PDR can reduce poverty, meet growing domestic meat demand and rise livestock exports is a problem. Findings from research in two upland Northern provinces demonstrate how the introduction of forages for livestock has changed the lives of some farmers and villages, but concludes that

strategies are still needed to engage poorer households. There were less impacts of changing domestic and export markets (Millar and Photakoun, 2007).

CNFA (2012) explained that the United States Agency for International Development (USAID)-funded programs Kenya Drylands Livestock Development Program (KDLDP), Citizens Network for Foreign Affairs (CNFA) is helping pastoralist households in northeast Kenya overcoming challenges to achieving both economic and food security in the region. Pastoralists suffer from limited access to veterinary medicines, feed and water, poor disease control, weak linkages between producers and markets, and a lack of price transparency in the local markets. The programs activities enhanced the entire livestock value chain, from providing access to improved inputs through producer group development, market information and expansion of local value adding enterprises. The result was to catalyze trade, production, and food security. KDP confirm the production of fodder for pastoralists to alleviate the impact of future drought. Pastoralists were able to produce a new quality crop as nutritional food for livestock and a good source of income. CNFA and local partners is working to improve income and food security for 50,000 households.

Madagascar Livestock and Rural Development Project aimed to increase meat and milk production, improve the incomes of poor cattle owners and increase meat exports. The project also aimed to encourage policy changes in the livestock sector. The outcome of the project is that Animal-health protection; roads and water supply were improved, primarily benefiting IFAD's target groups of rural women, poor farmers and small pastoralists. The basic animal-health project was successfully implemented, resulting in effective vaccination coverage of livestock in the project area. By the end of the project, cattle mortality had been reduced by 30% and calf mortality by 40%. The project helps in the privatization of veterinary services when the

government monopoly over imports was ended. It also trained all staff members of the Livestock Development Agency for West Madagascar (IFAD, 2014a).

The objectives of the Nigeria Second Livestock Development project financed by the WB in 1986 to increase the production of livestock products to increase incomes of the farmers, and increase the attention given by public livestock services to traditional and small producers. It also aimed to increase the role of the private sector in input supply, introduce full cost recovery for inputs and veterinary supplies, and establish livestock sector planning in the Federal Ministry of Agriculture. The project was achieved its objectives. About 23,000 loans were made, for a total of about N 170 million (about N 7,500 per loan). As expected, about 75% of the loans were for cattle fattening. So an effective vaccination program for small ruminants was established, and responsibility for some animal services and vaccination was transferred from the federal level to participating states, with considerable success. (WB, 2012).

Namibia Northern Regions Livestock Development Project aimed to improve the economic and social well-being of the rural population in the Northern Communal areas by promoting increased livestock production and greater productivity and ensuring development of a sustainable range management system with more equitable distribution of assets and resources. The outcome of the Project has been instrumental in encouraging a more integrated approach to regional and national agricultural development planning. The project's was focus on poverty reduction. The staff was trained in interactive skills for dealing with rural communities, which improved the targeting of activities to resource-poor communities and households. (IFAD, 2014b).

Based on IFAD (2014c) Ethiopia Fourth Livestock Development Project focused on improving the livelihoods and food security of small-scale agro-pastoralists in the highlands by addressing the main problems affecting their

livestock, including disease and under-nourishment through improved animal health, improved animal nutrition and improved range management and benefit by agro-pastoralists, the most important achievement was the successful introduction of several exotic herbaceous and tree legumes. The project established two animal health and veterinary centers and strengthened vaccine production at the national level.

Based on Aga Khan Foundation (AKF) Development in Rural Areas, for Aga Khan Foundation (2007), AKF works to improve farming systems by training beneficiaries through farmer field schools and Participatory Technology Development (PTD) groups through sessions on enhancing productivity, animal welfare and value addition practices. The outcome of the project was that more than 2,000 men and women were trained in these sessions during 2009, about 28 livestock development centers was established and has helped also to establish 110 livestock field units to provide veterinary services. So the program estimates that animal populations have increased by 25% and animal mortality has decreased by 50% as a result of access to these services.

Nepal Community Livestock Development Project was aimed to reduce the poverty in rural communities in the project area, and to improve food security, nutrition, incomes, and employment through increased productivity of the livestock subsector. The project outcomes were improved livestock production through support for goats rearing, forage cultivation, and microfinance services. The project also developed processing, and marketing enterprises (ADB, 2009).

The objective Philippines Smallholder Livestock Development Project was to increase the number, productivity and quality of cattle and goats in The Philippines, to improve the income and diversifying on-farm employment opportunities of for smallholders in livestock production. The project motivated the formation of farmer cooperative groups, and a number of

smallholder farmers joined larger medium-scale producers with the capacity to provide management, operating capital and marketing support to form small commercial operations, (IFAD, 2014d).

In Sudan many Rural Development Programs based on livestock production were implemented. Among these the Western Savannah Development Project Phase II, aimed to increase livestock output by creating an effective veterinary service, the project achieved important results in the field of animal health (IFAD, 2014e).

South Kordofan Rural Development Program covers the entire rural domain of the state of South Kordofan, focusing on the poorest people in the region. The overall goal of the program was to improve the incomes of the poorest people, smallholder and herder families in the state, and to provide them with access to social services. The program supported the peace process through post-crisis rehabilitation and development. Specific objectives of the program were to enhance incomes and productivity by providing community-based services, establishing community-run safe drinking water supplies and basic health-care facilities, establishing local and state institutions that can help rural communities improve their livelihoods and enable people in local communities to plan, implement and manage their own development activities and resolve group conflicts. The project made a major contribution to the re-establishment of peace in the region by providing social and economic support to rural poor people who have been affected by civil strife. Agricultural starter packs were distributed to nearly 20,000 of the poorest farmers in the program area, (IFAD, 2014f).

Livestock production and marketing is the most viable economic activity in the Butana Integrated Rural Development Project, and raising productivity is an effective way of creating lasting improvements in living conditions and household food security for the poorest farmers in the project area. It is also a good way of increasing women's economic status in the community and

home. The project also helps develop crop production, and small off-farm enterprises, especially dairy processing. The specific objectives of the project are to support improvements in natural resource governance to ensure regulated access to land and water resources in the region for all, improve the access of women and men to livestock markets and strengthen their bargaining position within markets, by rehabilitating market infrastructure and by establishing market information systems and organizing producers' groups, build the capacity of grass-roots organizations to design and implement environmentally sound development initiatives that include women. The achievements of the project during the period in 2012 are formation of the interest groups within the target villages and work in the construction of two livestock markets, (Annual Progress Report, 2012).

## **2.7 Restocking Projects**

Restocking is an approach that aims at helping individual pastoral households or communities to build up lost herds and flocks in a sustainable manner. Restocking is normally best if designed and implemented in close participation with the beneficiaries through their traditional and informal institutions. The objective of restocking (e.g. provision of dairy cows, draught animals, small ruminant starter flocks, etc.) and the benefit to the targeted herders should be clearly defined, (IFAD, EKSYST, 1996).

### **2.7.1 Restocking Projects in Africa**

In several of IFAD's investment projects in Africa (Zambia, Ghana and Benin), the distribution of draught animals to poor farmers and herders who rely on slash-and-burn cropping to supplement livestock production aims at increasing the area of land cultivated. (The selection of the type of livestock depends on the soil and terrain.) For poor farmers with small land holdings and those who have lost their stock during drought or war, draught animals can be very attractive if they fulfill a dual function, such as transport and the production of milk and meat, (IFAD, EKSYST, 1996).



The experience gained through IFAD-funded projects with livestock components involving draught animals is quite mixed. In general, the principles are well accepted and in specific circumstance the interventions quite successful. For example, in Zambia, the oxenization program was successful in allowing increases in cultivated land, but the peak requirements coincided with the drought period, when nutritional status was at its lowest and labour was scarce; hence implementation was limited. In Ghana, medium-term credit was to be provided to individuals and groups for bullocks and implements, but this was reduced to a pilot program because of lack of uptake. In Benin, oxen and ploughs were specified as a means of increasing food crop production, but it was found that these were actually used by preference for cash cropping (IFAD, EKSYST, 1996).

### **2.7.2 Restocking Projects in Sudan**

Poverty in the Sudan is deeply entrenched and is largely rural. In 2002 some 20 million people were living below the poverty line of less than US\$1 a day. About 19 million people (85 %) of the rural population are estimated to be living in extreme poverty (IFAD, 2007). Most of them struggle to feed themselves and their families and have little or no access to safe drinking water and health services (IFAD, 2007).

Western Sudan Resources Management Program aim to build up traditional rainfed agriculture and improve economic circumstances in communities in the three Kordofan states. The program focuses on the importance of natural resource management in appropriate resolving land and water-based conflicts. Establishing land rights for herders and for traditional and mechanized farming, improving access to water, and providing good gold strengthening basic infrastructure are essential elements of the program. In the poorest areas the program invests in livestock restocking, vocational training and introduction of alternative income-generating enterprises, (IFAD, 2007).

### **2.7.3 ILPMP Restocking**

Restocking is preferable by all the beneficiaries because of the sense of ownership, social prestige and direct poverty reduction impact.

Livestock is important for millions of rural sedentary and nomadic households in Sudan, they provide meat and milk. They represent a main source of cash income for producers in traditional rain fed areas where crops typically yield little above subsistence needs. It is well known that Sudan had subjected to number of droughts and long cruel strife resulting in excessive destitution in traditional rain fed areas.

The objectives to test pilot approaches to improve livestock production and marketing, the socio-economic groups will increase their incomes and recover from the impoverished situation. Provide the women headed households and the most vulnerable groups with startup herd to launch social integration i.e . Beneficiaries end up with herds of viable size.

Inputs are provision of an economically feasible number of livestock, (sheep or cattle) per individual. Training of the target groups in primary animal health care and animal husbandry. The pastoralists, who were affected by war and/or displacement and lost their stocks, are targeted.

The activities in the target villages are to identify villages within the project area, where households' destitute pastoralists are found, during the community mobilization. These villages are assumed closer to the livestock route, of majority pastoralists, and acquire willingness and skills. Later the extension team conducts the rabid household questionnaire survey.

The composition of sheep and modalities it depends on the repayment process whether, In cash (5 pregnant ewes to be retained and 10 ram to be fattened and sold to repay the loan). Or in kind (10 – 15 pregnant ewes, to be retained and the expected female offspring to be redistributed for the waiting eligible groups. While the expected males to be fattened and sold to repay the loan in installments).

**Restocked on cost recovery base:**

Allocation of at least 5% of the total price of the restocked small ruminants by the interest group in the VDC Bank account), the 15% of the price is assured to be given in kind (feeding and housing). ILPM pays the 80% which will be allocated at the VDC account directly after the 5% being deposited in the account. The interest group will repay back the 80% with a marginal of 10% to the VDC of the respective group to cover the cost of the lending process and meet the devaluation resulted from the inflation.

**Training of the beneficiaries:**

The VDC and the identified group trained on Primary Animal Health Care/ Animal Husbandry, book keeping, managing bank a/c, marketing, and revolving. (ILPMP Restocking Report, 2014).

**2.8 Project Impact Assessment/Evaluation**

Impact Assessment is a means of measuring the effectiveness of organizational activities and judging the significance of changes brought about by those activities, (Impact handbook, 2015).

The comprehensive evaluation was defined in the literature as an evaluation that includes monitoring, process evaluation, and impact evaluation (Baker, 2000).

Based on (OECD, 2001) an Environmental Impact Assessment (EIA) is an analytical process that systematically examines the possible environmental consequences of the implementation of projects, programs and policies.

According to Baker (2000) the evaluation methods and corresponding data requirements are shown in table 2.1.

**Table 2.1 Evaluation Methods and Corresponding Data Requirements**

Method	Data requirement		Use of qualitative approach
	Minimal	Ideal	
Experimental or randomized controls	Single project cross-section with and without surveys on beneficiaries	Baseline and follow-up surveys on beneficiaries both and non-beneficiaries. Allows for control of contemporaneous events, in addition to providing control for measuring impact. (This allows for a difference-indifference estimation.)	Inform design of survey instrument, sampling <ul style="list-style-type: none"> <li>• Identify indicators</li> <li>• Data collection and recording <ul style="list-style-type: none"> <li>– Textual data</li> <li>– Informal or semi-structured interviews</li> <li>– Focus groups or community meetings</li> <li>– Direct observation</li> <li>– Participatory methods</li> <li>– Photographs</li> <li>– Triangulation</li> <li>– Data analysis</li> </ul> </li> </ul>
Non experimental designs a) Constructed controls or matching	Large survey, national budget, or type of survey that oversamples beneficiaries	Large survey, and smaller project based household survey, both with two points in time to control for contemporaneous events	
b) Reflexive comparisons and double difference	Baseline and follow-up on beneficiaries	Time series or panel on beneficiaries and comparable non-beneficiaries	

c) Statistical control or instrumental variable	Cross-section data representative of beneficiary population with corresponding instrumental variables	Cross-section and time series representative of both the beneficiary and non-beneficiary population with corresponding	
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Sources: (Baker, 2000)

The World Bank Report 2013, was used the framework analysis for Project development objectives and outcome indicators for the evaluate of the impact of the Improving Livestock Production and Marketing Project presented in table (2.2).

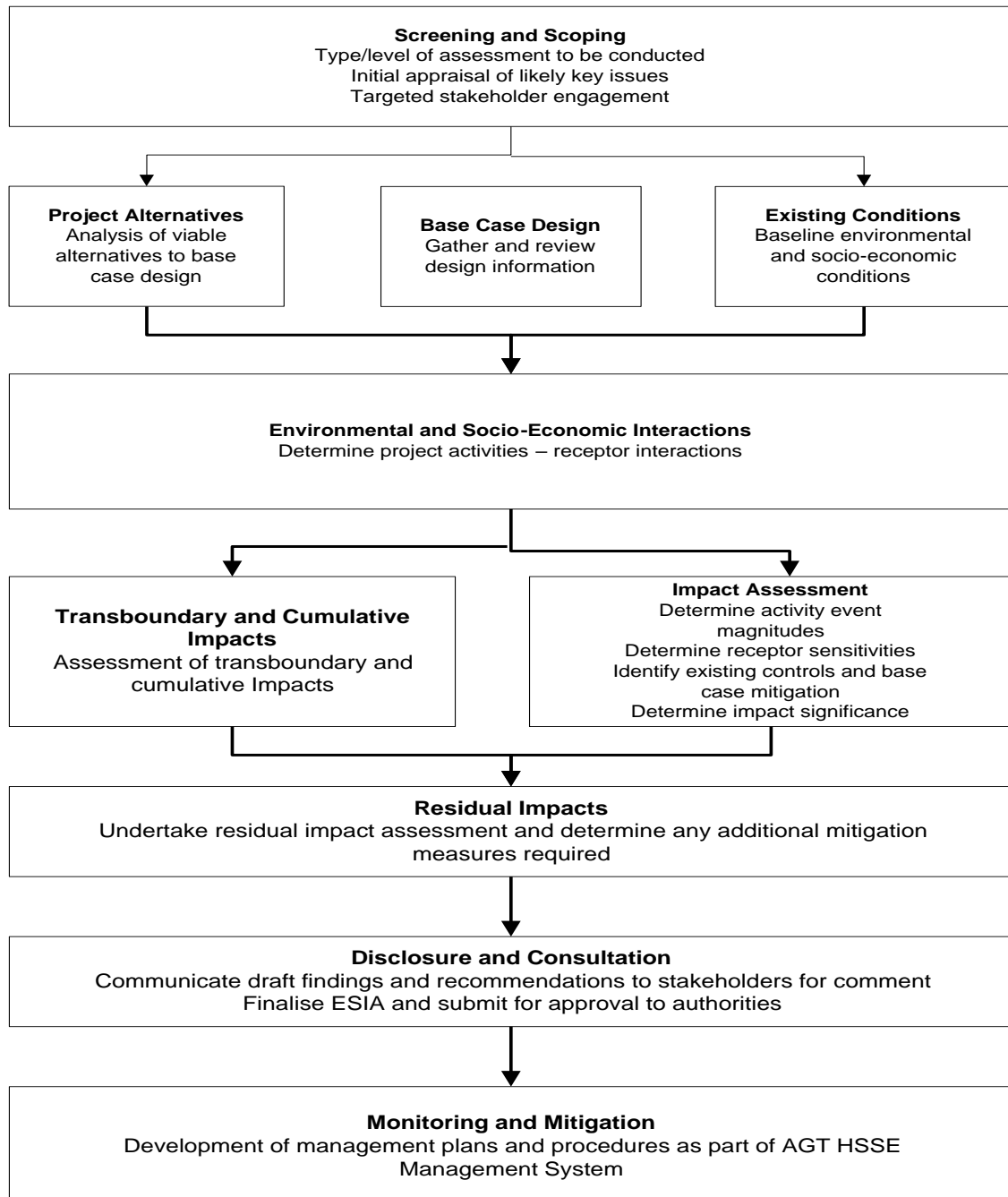
**Table 2.2 Framework Analysis for Project Development Objectives and outcome Indicators**

<b>Indicator</b>	<b>Baseline Value</b>	<b>Target Values</b>	<b>Actual Value Achieved at Completion or Target Years</b>
<b>Indicator 1</b>	Average herd size of small ruminants per household in targeted areas (number)		
Value quantitative			
Date achieved			
<b>Indicator 2</b>	Direct Project Beneficiaries (number)		
Value quantitative			
Date achieved			
<b>Indicator 3</b>	Direct Project Beneficiaries of which female (%)		
Value quantitative			
Date achieved			
<b>Indicator 4</b>	Animals traded in the rehabilitated livestock markets, by type of livestock (number)		
Value quantitative			
Date achieved			

The process adopted for the Shah Deniz 2 (SD2) Project Environmental & Socio-Economic Impact Assessment (ESIA) (ESIA, 2013) and the

methodology used to assess impact significance of the project and its associated activities throughout the project lifecycle included:

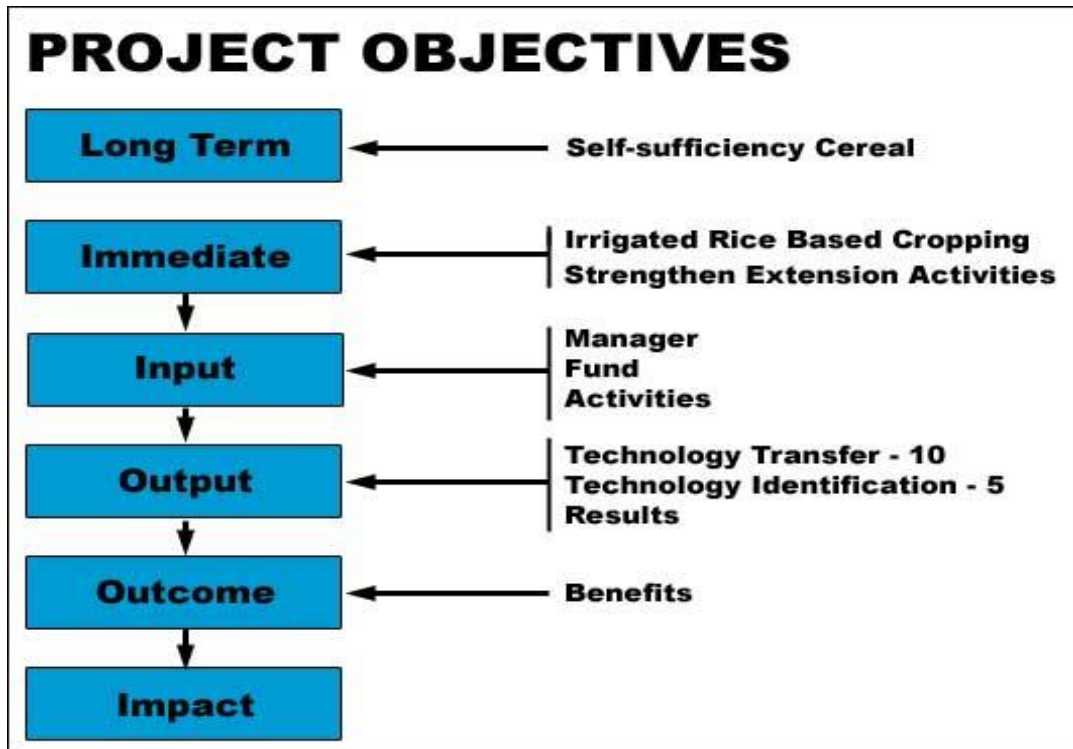
Screening and Scoping, Project Alternatives and Base Case Design, Existing Environmental and Socio-Economic Conditions, Impact Assessment, Residual Impact Identification, Disclosure and Stakeholder Consultation; and Mitigation and Monitoring as seen figure 2.1:



**Figure 2.1 Environmental and Socio-Economic Impact Assessments.**

Source: ESIA, 2013

Mallick *et al*, (2000) defining the project objectives using a diagram as shown in figure (2.2), they developed a conceptual framework of impact assessment-criteria and indicators (figure 2.3) and levels of impact (figure 2.4) for the impact assessment at Thana Cereal Technology Transfer and Identification (TCTTI) Project the case study of Upazila level started after 4 years of project implementation.



*Figure 2.2 Project objectives.* Source: (Mallick *et al*, 2000).

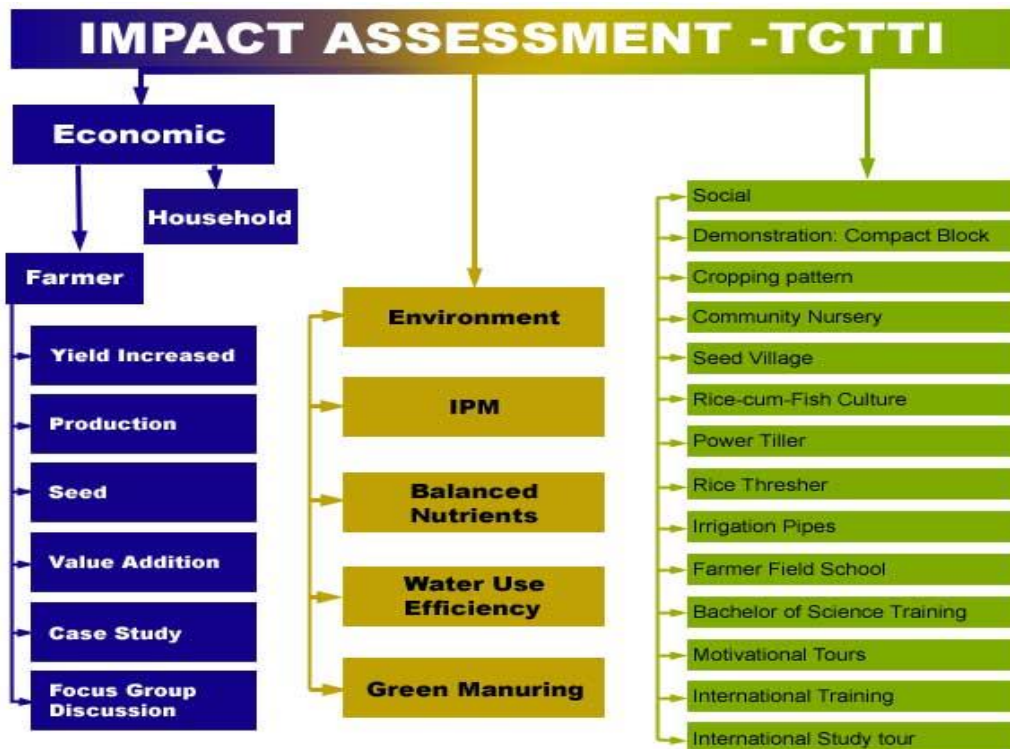


Figure 2.3 Conceptual Framework of Impact Assessment-Criteria and Indicators. Source: (Mallick et al, 2000).

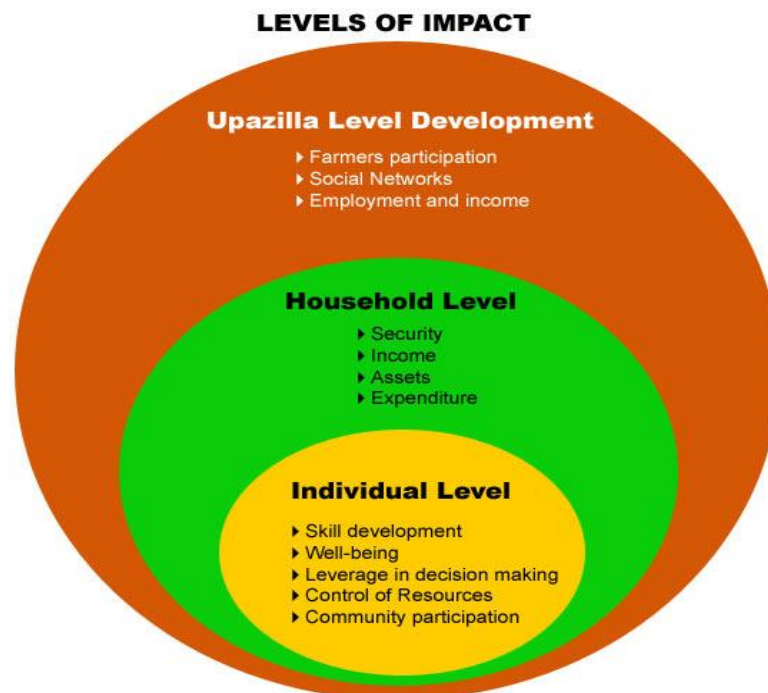


Figure 2.4 Levels of Impact. Source: (Mallick et al, 2000).



# CHAPTER THREE

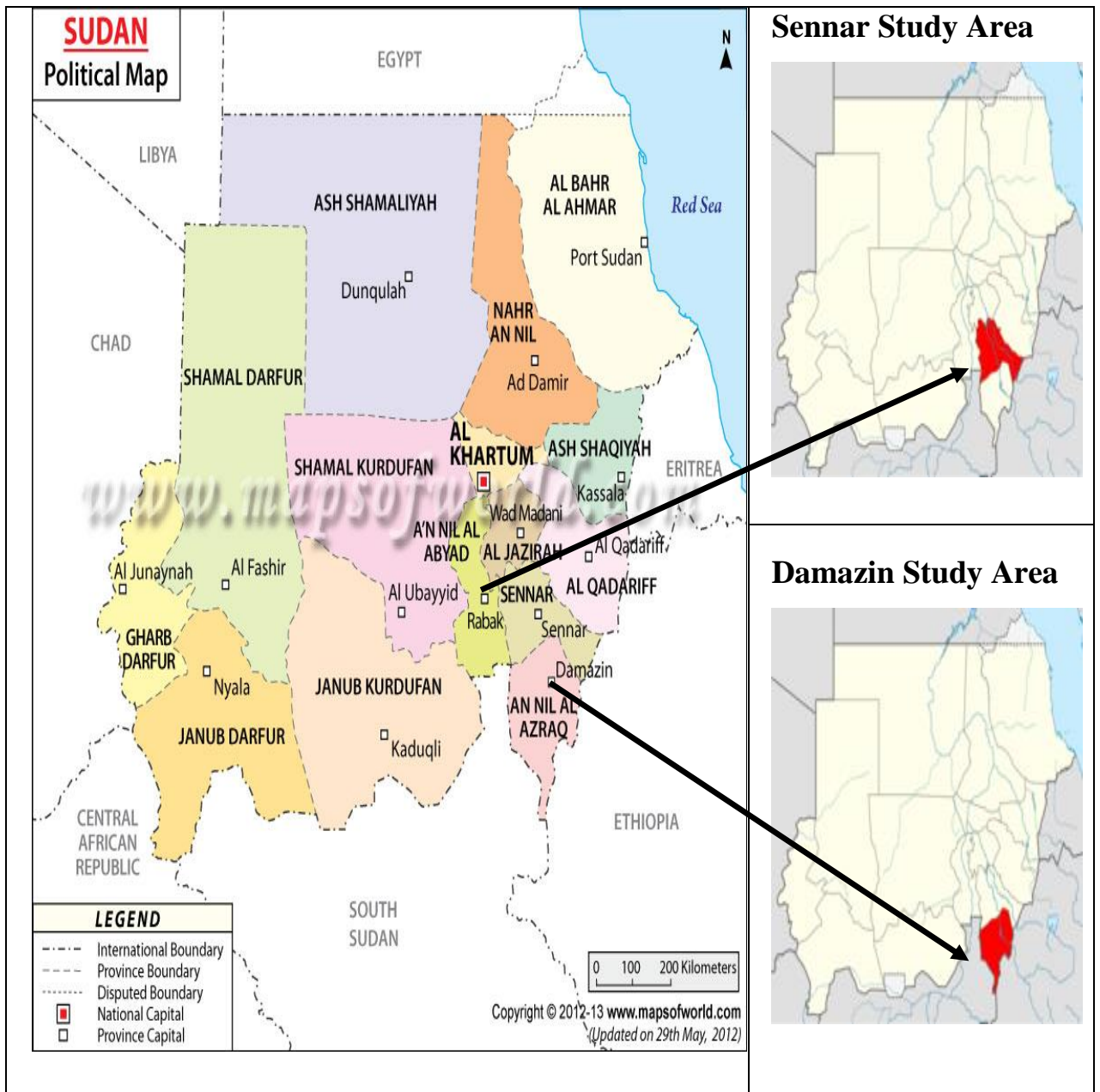
## METHODOLOGY

This chapter presents the study area, study design and the methods of the data collection and analysis. The research adopted quantitative and qualitative approaches based on empirical data collected from field survey and secondary data obtained from literature, documents and internet sites.

### 3.1 The Study Area

Blue Nile is one of the eighteen States of the Republic of Sudan. It is located in the geographic coordinates  $11.7891^{\circ} \text{N} \times 34.3592^{\circ} \text{E}$  and occupies an area of  $45,844 \text{ km}^2$  and has an estimated population of 1,193,293, (CBS, 2006). It is located in the south-east of Sudan borders bounded by Sennar State and shares an international border with Ethiopia and South Sudan. (Sudan tribune, 2015). It is the home of the Roseires Dam which dammed at El Roseires  $11^{\circ}49'\text{N}/34^{\circ}20'\text{E}$  (Books.google, 2015). The Dam was the main source of hydroelectric power in Sudan before the completion of the Merowe Dam in 2010. The economic activity of the State is based on agriculture and livestock and increasing mineral exploitation. Livestock population accounted to 6,201,000 head. (MoLFR, 2014). Damazin is the capital of the State. The population of Ed Damazin accounted to 186,051 people, (CBS, 2006).

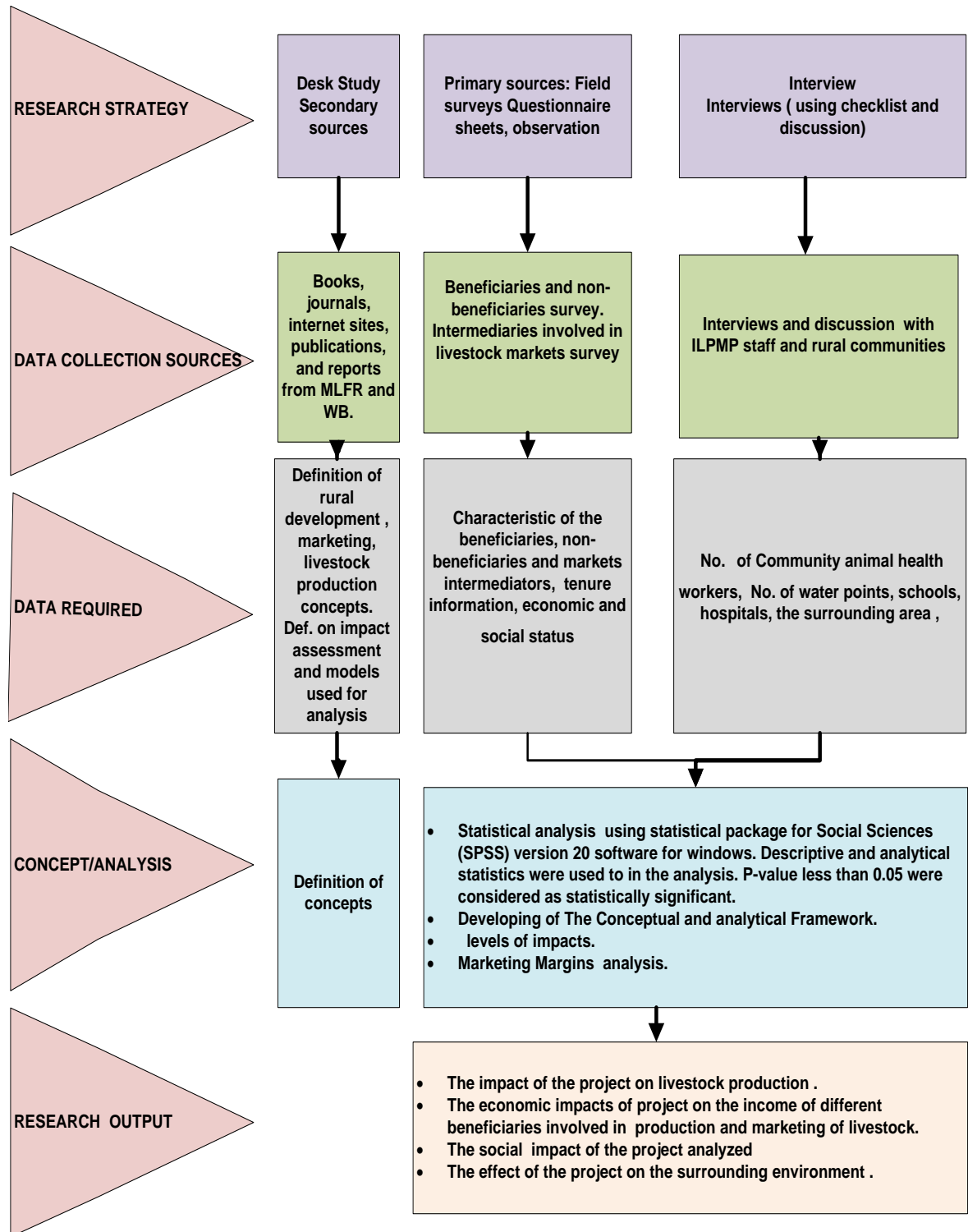
Sennar State is located at  $13^{\circ}33'\text{N}, 33^{\circ}37'\text{E}$ . It has a subtropical desert / low-latitude arid hot climate, (Sennar. climatemps, 2015), It has an area of  $37,844 \text{ km}^2$  and a population of approximately 1,100,000 (CBS,2006). Sinjha is the capital of the State with approximately 44,626 inhabitants (CBS, 2006). Another significant town is Sennar the largest city in the State. The main economic activity is agriculture; it is worth mentioning that the State encompasses Suki irrigated scheme. Livestock in the State accounted to 6,383,134 head (MoLFR, 2014).



**Figure 3.1 Map of Sudan.** Source: <http://www.google.com/imgres>

### 3.2 Research Design

Figure 3.2 presents the design followed in conducting the research, including research strategy, data required and their collection tools, the concepts and analysis and finally the research output.

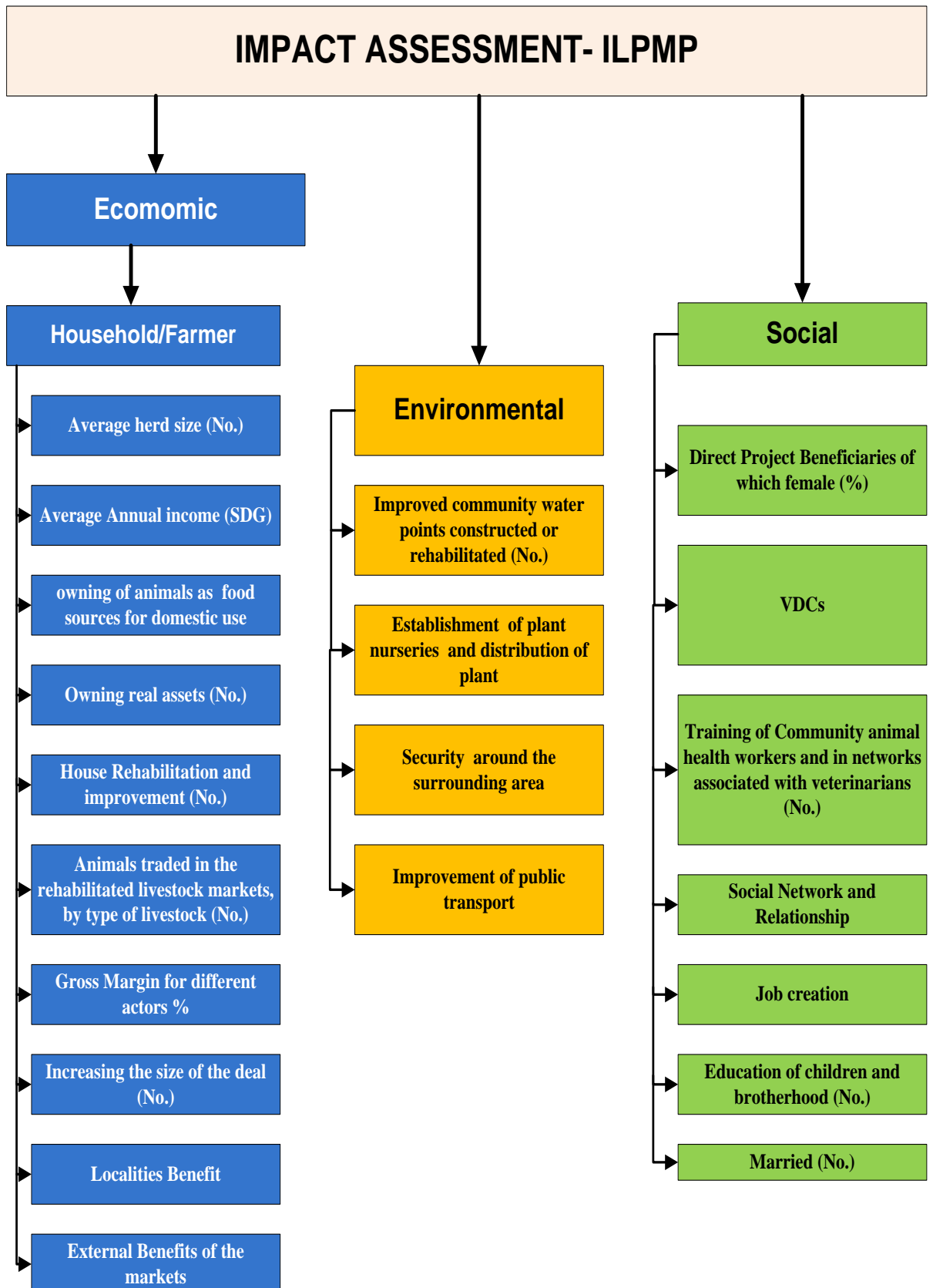


*Figure 3.2 Research Design*

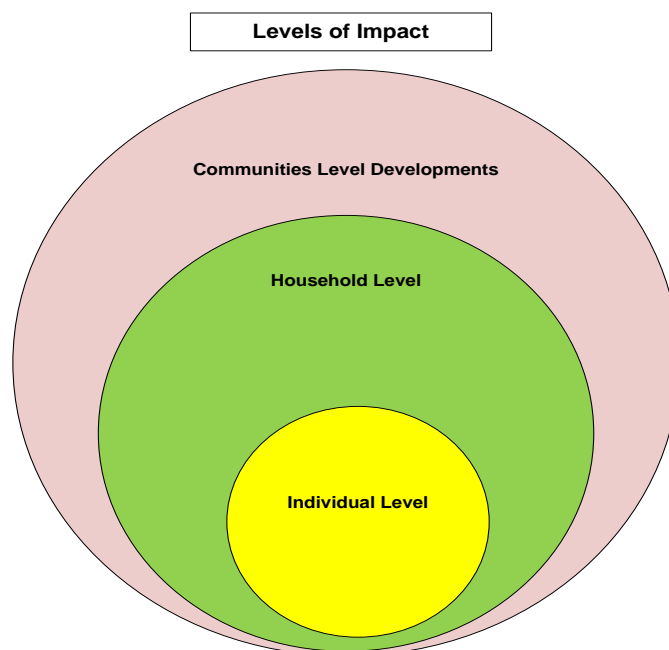
### **3.3 The Conceptual and Analytical Framework**

#### **3.3.1 The conceptual framework**

The conceptual framework of this study is adapted and based on criteria and levels described by Mallick *et al*, (2000) where the economic, social and environmental impact of the project were assessed at individual, households and community levels, figures 3.3 and 3.4. Mallick *et al*, (2000) used the conceptual framework to assessment Upazila level started after 4 years of project implementation. Impact assessments broadly evaluate the effects of the program on people in economic, social and environmental aspects. For example, the first level of impact is directly on the participating farmers of the Farming Systems Research and Development (FRSD) project. An effort to develop a methodology for better documentation was tested by the Thana Cereal Technology Transfer and Identification (TCTTI) Project in 2000/01. where the economic, social and environmental impact of the project were assessed at individual, households and community levels, figures 3.3 and 3.4.



**Figure 3.3 Conceptual framework - Criteria and Indicators for impact assessment-ILPMP**



*Figure 3.4 Levels of Impact at Individual, Household and communities*

### 3.3.2 The general analytical framework

The World Bank analytical framework for the evaluation of the impact of the Improving Livestock Production and Marketing Project in 2013 was used as analytical Framework with some modification by adding three columns; the first one for the changes in percentage, second one for the type of the impact assessed and third one for source of data, table (3.1).

**Table 3.1 The General Analytical Framework for restocking project**

Indicator	Baseline Value	Target Values	Actual Value Achieved at Target Years	change	Impact Assessment of the Project	Source of Data
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Economic Impact</b>	
<b>Indicator1</b>	<b>Average herd size of small ruminants per household in targeted areas (No.)</b>					
Value quantitative						
<b>Indicator2</b>	<b>Average Annual income (SDG)</b>					
Value quantitative						
<b>Indicator3</b>	<b>owning of animals as food sources for domestic use</b>					
Value quantitative						
<b>Indicator 4</b>	<b>Owning real assets (No.)</b>					
Value						

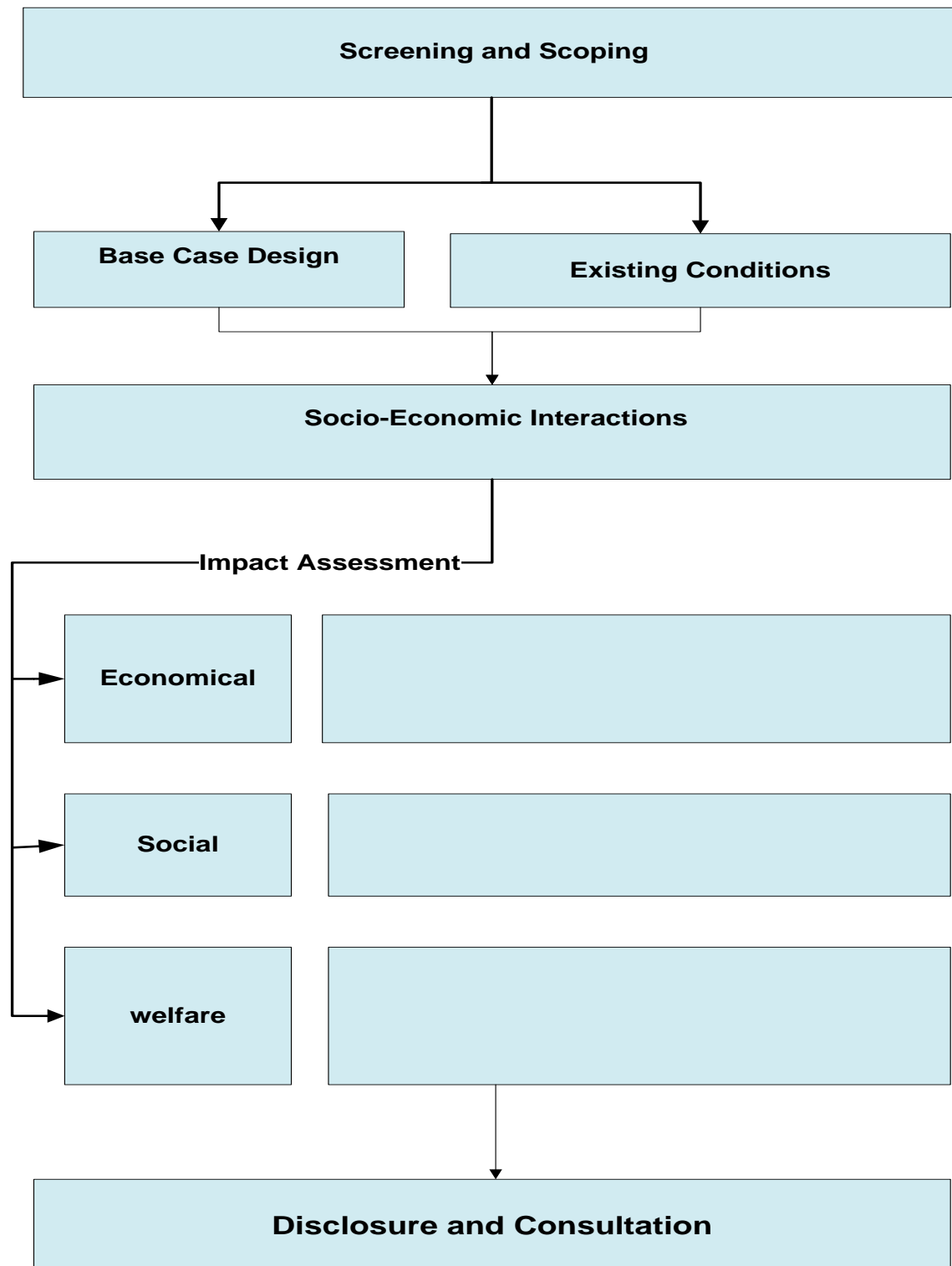
Quantitative						
<b>Indicator 5</b>	<b>House Rehabilitation and improvement (No.)</b>					
Value quantitative						
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Social impact</b>	
<b>Indicator 1</b>	<b>Direct Project Beneficiaries of which female (%)</b>					
Value quantitative						
<b>Indicator 2</b>	<b>Improved community water points constructed or rehabilitated (number)</b>					
Value quantitative						
<b>Indicator 3</b>	<b>Training of Community animal health workers and in networks associated with veterinarians (number)</b>					
Value quantitative						
<b>Indicator 4</b>	<b>Social Relationship among community</b>					
Value Qualitative						
<b>Indicator 5</b>	<b>Job creation</b>					
Value Qualitative						
<b>Indicator 6</b>	<b>Education of children and brotherhood (number)</b>					
Value quantitative						
<b>Indicator 7</b>	<b>Marriage (number)</b>					
Value quantitative						
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Environment impact</b>	
<b>Indicator 1</b>	<b>Rehabilitation of community water points (number)</b>					
Value quantitative						
<b>Indicator 2</b>	<b>Training of community animal health workers (number)</b>					
Value Quantitative						
<b>Indicator 3</b>	<b>Establishment of plant nurseries and distribution of plant seeding</b>					
Value Quantitative						
<b>The General Analytical Framework for Rehabilitation of Livestock Markets Project</b>						
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Economic Impacts</b>	
<b>Indicator 1</b>	<b>Animals traded in the rehabilitated livestock markets, by type of livestock (No.)</b>					
Value quantitative						
<b>Indicator 2</b>	<b>Gross Margin for the different actors %</b>					
<b>Date</b>	<b>2011</b>		<b>2015</b>			

<b>achieved</b>						
Value quantitative						
<b>Indicator 3</b>	<b>Increasing the size of the deal (No)</b>					
Value quantitative						
<b>Indicator 4</b>	<b>Localities Benefit</b>					
Value Qualitative)						
<b>Indicator 5</b>	<b>External Benefits of the markets</b>					
Value Qualitative						
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>			<b>Social Impacts</b>	
<b>Indicator 1</b>	<b>Social Network and Social Relationship</b>					
Value Qualitative						
<b>Indicator 2</b>	<b>Job Creation</b>					
Value Qualitative						
<b>Indicator 3</b>	<b>Training of animal health workers (number.)</b>					
Value quantitative						
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>change</b>	<b>Environmental Impacts</b>	
<b>Indicator 1</b>	<b>Security around the surrounding area</b>					
Value Qualitative						
<b>Indicator 2</b>	<b>Improvement of public transport</b>					
Value Qualitative						



### 3.3.3 Summary of the framework used

The conceptual and analytical frameworks used are summarized according to Shah Deniz 2 Project Environmental and Socio-Economic Impact Assessment (ESIA, 2013) with some modifications in the frame name and design, (figure 3.5).



*Figure 3.5 Socio-Economic Impact Assessments*

### **3.4 Data Collection**

#### **3.4.1 Desk study (collection of secondary data)**

The sources of data for desk study were internet sites, scientific Journals, books, reports and publications.

#### **3.4.2 Collection of primary data**

##### ***1. The Field Surveys***

##### **Three field Surveys were conducted to collect the primary data:**

The first one involved livestock production in the sub-project areas, namely Damazin Locality (Wadalfaki and Wadbaloola communities) and Abuhugar Locality (Elbogaa, Elwanasb and Omnamil communities). All of the beneficiaries who participated in restocking project were investigated, (90 persons, 50 from Sennar State and 40 from Blue Nile State). Structured questionnaires were used to collect the required data (Appendix 1).

The second field survey involved (90) small scale non-beneficiaries in the same communities (50 from Sennar State and 40 from Blue Nile State) (Appendix 2). Small scale non-beneficiaries are the producers of livestock who lives in the same community and they are not participated in ILPMP. They are selected randomly with the assistance of the villages' sheikh, who were at the same status like beneficiaries regarding to the type of animal reared, and leave in the same environment.

The third field survey was conducted in the period of December 2014, in which the intermediators involved in livestock marketing were investigated. A total of 67 intermediators in Damazin and Sinjha markets. (30 form Damazin livestock market and 37 form Sinjha livestock market) were surveyed using a structured questionnaire (Appendix3).

The field survey was carried out with the assistance of the LIU team, they are already trained for questionnaires by the project during the baseline survey.

## ***2. Interviews and group discussions***

The study involved personal interviews and group discussions with ILPMP staff and rural communities in the study areas as indicated in figure 3.2. A checklist was used to guide the interviewers (Appendix 4).

## ***3. Observations***

The researcher observations were also used in collecting data. Visiting the interviewees allows the researcher to observe the practices, activities and status regarding livestock production and livestock markets and the surrounding environments. The researcher observations availed an opportunity to validate some of the data given in interviews and this enhanced the study.

### **3.5 The Indicators Used and Their Estimation**

#### **3.5.1 The quantitative indicators**

The following quantitative indicators were estimated using the percentage

<b>Indicators</b>	<b>Methods of Estimation</b>
The size of the herd	Baseline Value/Actual value achieved at completion or target years*100%
The annual income	Baseline Value/Actual value achieved at completion or target years*100%
Owning of animals as food sources for domestic use	Baseline Value/Actual value achieved at completion or target years*100%
Owning real assets	Number of beneficiaries owned real assets/ total number of beneficiaries *100%
The rehabilitation and improvement of houses	Number of beneficiaries introduced rehabilitation and improvement to their houses /total number of beneficiaries *100%
Direct Project Beneficiaries of which female	Number of female beneficiaries/total number of beneficiaries*100%
Improved community water points constructed or rehabilitated	Actual value achieved at target years/target number of water points*100%
Training of Community animal health workers and	Actual value achieved at target years/target values*100%

in networks associated  
with veterinarians  
(number)

Establishment of plant  
nurseries and distribution  
of plant

Number of plant nurseries established/number of  
rehabilitated water points\*100%

Animals traded in the  
rehabilitated livestock  
markets, by type of  
livestock

Number of animals in Baseline value/actual value  
achieved at target years\*100%

Gross Margin for different  
actors\*

Gross income\*100/Revenue

### **\*Marketing Margins**

Marketing Gross Margins analysis was used to analyze the marketing Gross margin at each level of the marketing chain.

For calculating marketing Gross margins the following equations were used

$Gross\ income = Revenue - Variable\ costs$
$Gross\ margin = Gross\ income \times 100 / Revenue$
$Added\ value = Price\ received\ by\ actor - Price\ paid\ by\ actor$
$Value\ share = Added\ value \times 100 / Final\ retail\ price$

Source: KIT and IIRR, 2008.

Where;

\*Variable costs are the costs of feed, water, labor and vaccinations...etc.

\*Revenues it is the money she or he earns by selling the produce, plus selling by- products or waste.

### **3.5.2The Qualitative indicators**

The qualitative indicators were assessed according to the interviewees, group discussion or researcher observations.

### **3.6 Data Analysis and Processing**

The quantitative data compiled from the questionnaires were analyzed using SPSS package where descriptive statistics was used to describe the characteristics of producers and market intermediators. Chi square test was

used to compare some results obtained. Excel spread sheet was used to compute the gross margins and regression analysis of prices and quantities of livestock traded during the project life span.

## **CHAPTER FOUR**

### **RESULTS**

This chapter presents the findings of the research as carried in chapter 3. The findings of the restocking sub-project which included the beneficiaries and non-beneficiaries survey in five communities, beside the data collected by interviewing ILPMP staff and rural communities are presented first, followed by the findings of the livestock markets survey.

#### **4.1 The Livestock Restocking Project Survey**

Restocking was purposely selected by the project because this activity is preferable by all the beneficiaries. It provides the sense of ownership, insure social prestige and directly reduce poverty. This intervention was excited to test the impact of the approach in improving livestock production. The input was provision of an economically feasible number of livestock (sheep or goats) to each beneficiary. Training of the target groups in Primary Animal health Care and animal husbandry also constituted an other input. The expected outputs are that the beneficiaries restocked with small ruminants and given vet care. The impact of this pilot approach is presented below.

##### **4.1.1 The investigated population**

Two populations were investigated these are beneficiaries and non-beneficiaries.

##### ***1. The Characteristics of the Beneficiaries***

The survey result indicates that more than 50% of the beneficiaries are illiterates. Primary level is the most dominant level of education where 20.0% of the beneficiaries in both project areas fall within this level. The majority of the respondents are young men whose age ranges between 31-40 years. In Blue Nile State (BNS) most (75.0%) of the beneficiaries are pastoralist, the rest are crop farmers (25.0%). While in Sennar State (SS) 36.0% of beneficiaries are Agro-pastoralist, the Pastoralist represents 60.0% and the Crop Farmers are 2.0%, (table 4.1).

**Table 4.1 The Characteristics of the Beneficiaries**

PARAMETER		Sennar State		Blue Nile State	
		Frequenc y	%	Freq.	%
<b>Gender</b>	<b>Male</b>	32	64.0	31	77.5
	<b>Female</b>	18	36.0	9	22.5
	<b>Total</b>	50	100.0	40	100.0
<b>Education Back- ground</b>	<b>Illiterates</b>	35	70.0	25	62.5
	<b>Primary Level</b>	10	20.0	8	20.0
	<b>Secondary Level</b>	3	6.0	7	17.5
	<b>College/university</b>	2	4.0	0	0
	<b>Total</b>	50	100.0	40	100.0
<b>Age Groups</b>	<b>&lt;20 years</b>	1	2.0	0	0
	<b>20-30 years</b>	3	6.0	5	12.5
	<b>31-40 years</b>	15	30.0	22	55.0
	<b>41-50 years</b>	14	28.0	11	27.5
	<b>51-60 years</b>	14	28.0	2	5.0
	<b>&gt;60 years</b>	3	6.0	0	0
	<b>Total</b>	50	100.0	40	100.0
	<b>Crop Farmer</b>	1	2.0	10	25.0
	<b>Pastoralist</b>	30	60.0	30	75.0
	<b>Agro-pastoralist</b>	18	36.0	0	0
	<b>Freelancers</b>	1	2.0	0	0
	<b>Total</b>	50	100.0	40	100.0

The Chi square test revealed that there's no significant differences ( $P < 0.05$ ) in sex and education level of the beneficiaries between SS and BNS,

**Table 4.2 Chi-Square tests sex between two states**

**Chi-Square Tests Sex between two states**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.929 <sup>a</sup>	1	.165	.247	.123
Continuity Correction <sup>b</sup>	1.339	1	.247		
Likelihood Ratio	1.961	1	.161		
Fisher's Exact Test					
Linear-by-Linear Association	1.907	1	.167		
N of Valid Cases	90				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.00.

b. Computed only for a 2x2 table

**Table 4.3 Chi-square tests education level between two states**

**Chi-Square Tests Education Level between two states**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.433 <sup>a</sup>	3	.218
Likelihood Ratio	5.202	3	.158
Linear-by-Linear Association	.146	1	.703
N of Valid Cases	90		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .89.

While there's significant differences ( $P < 0.05$ ) in the age and the main occupation between two States.

**Table 4.4 Chi-square tests age between two States**

**Chi-Square Tests Age between two States**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	16.537 <sup>a</sup>	7	.021
Likelihood Ratio	19.793	7	.006
Linear-by-Linear Association	3.308	1	.069
N of Valid Cases	90		

10 cells (62.5%) have expected count less than 5. The minimum expected count is .44.

**Table 4.5 Chi-square tests main occupation between two States**

**Chi-Square Tests main occupation between two States**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.985 <sup>a</sup>	6	.000
Likelihood Ratio	46.775	6	.000
Linear-by-Linear Association	8.748	1	.003
N of Valid Cases	90		

a. 7 cells (50.0%) have expected count less than 5. The minimum expected count is .44.



## 2. The Characteristics of Non-beneficiaries

**Table 4.6 Characteristics of the Non-beneficiaries**

PARAMETER		Non-beneficiaries	
		Frequency	Percent
<b>Gender</b>	<b>Male</b>	70	77.8
	<b>Female</b>	20	22.2
	<b>Total</b>	90	100.0
<b>Education Background</b>	<b>Illiterate</b>	47	52.2
	<b>Primary Level</b>	32	35.5
	<b>Secondary Level</b>	10	11.1
	<b>College/university</b>	1	1.1
	<b>Total</b>	90	100.0
<b>Age Groups</b>	<b>&lt;20 years</b>	11	12.2
	<b>20-30 years</b>	28	31.1
	<b>31-40 years</b>	32	35.6
	<b>41-50 years</b>	12	13.3
	<b>51-60 years</b>	6	6.7
	<b>&gt;60 years</b>	1	1.1
	<b>Total</b>	90	100.0

As in case of the beneficiaries table 4.6 shows that more than 50% of the non-beneficiaries are illiterate and the primary level is the leading educational level. It also shows that the majority of respondents are young men with the 35.6% dominant age in the range from 31-40 years.

Table 4.7 shows that about 68.8% of non-beneficiaries are Pastoralist, about 13.3% are Crop farmer and 12.4% are Agro- pastoralist.

**Table 4.7 Main Occupation of Beneficiaries and Non-beneficiaries**

	Beneficiaries		Non-beneficiaries	
	Frequency	%	Frequency	%
<b>Crop farmer</b>	11	12.2	12	13.3
<b>Pastoralist</b>	60	66.7	62	68.8
<b>Agro- pastoralist</b>	18	20	11	12.4
<b>Freelancers</b>	1	1.1	2	2.2
<b>Student</b>	-	-	3	3.3
<b>Total</b>	90	100.0	90	100.0

### 3. Beneficiaries holdings and information

The survey results indicated that all beneficiaries in SS. have private holdings, while in BNS 7.5% of them were partners. Beneficiaries' own resources beside loans were the sources for financing the project activities. Most of the beneficiaries (62.5%) in BNS depend on loans whereas no single beneficiary in SS depends entirely on loans. In SS, the main type of activity of 92.2% of the beneficiaries was fattening of sheep, while in BNS about 65.0% of them practiced sheep fattening and 35.0% of them practicing goats breeding & fattening together with sheep. Also, the survey showed that; in BNS 82.5% of beneficiaries are sedentary. While in SS 60.0% and 24.0% are semi-nomads and nomads, respectively (Table 4.8).

**Table 4.8 Beneficiaries holdings and information**

		Sennar State		Blue Nile State	
		Frequency	Percent	Frequency	Percent
<b>Type of ownership</b>	<b>Private</b>	50	100.0	37	92.5
	<b>Partnership</b>	0	0	3	7.5
	<b>Total</b>	50	100.0	40	100.0
<b>Source of Funding</b>	<b>Loans</b>	0	0	25	62.5
	<b>Self finance + Loans</b>	50	100.0	15	37.5
	<b>Total</b>	50	100.0	40	100.0
<b>Type of activity</b>	<b>Sheep fattening</b>	46	92.0	26	65.0
	<b>Breeding &amp; fattening of sheep and goats</b>	4	8.0	14	35.0
	<b>Total</b>	50	100.0	40	100.0
<b>Breeding system</b>	<b>Nomadic</b>	12	24.0	3	7.5
	<b>Semi-nomadic</b>	30	60.0	4	10.0
	<b>Sedentary</b>	8	16.0	33	82.5
	<b>Total</b>	50	100.0	40	100.0

The Chi square test shows a significant differences ( $P < 0.05$ ) in type of ownership and source of finance of the beneficiaries in the two States.

**Table 4.9 Chi-square tests type and ownership between two States**

**Chi-Square Tests Type and ownership between two States**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.879 <sup>a</sup>	1	.049		
Continuity Correction <sup>b</sup>	1.901	1	.168		
Likelihood Ratio	4.995	1	.025		
Fisher's Exact Test				.084	.084
Linear-by-Linear Association	3.836	1	.050		
N of Valid Cases	90				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

b. Computed only for a 2x2 table

**Table 4.10 Chi-square tests source of finance between two states**

**Chi-Square Tests source of finance between two State**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	43.269 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	40.210	1	.000		
Likelihood Ratio	53.427	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	42.788	1	.000		
N of Valid Cases	90				

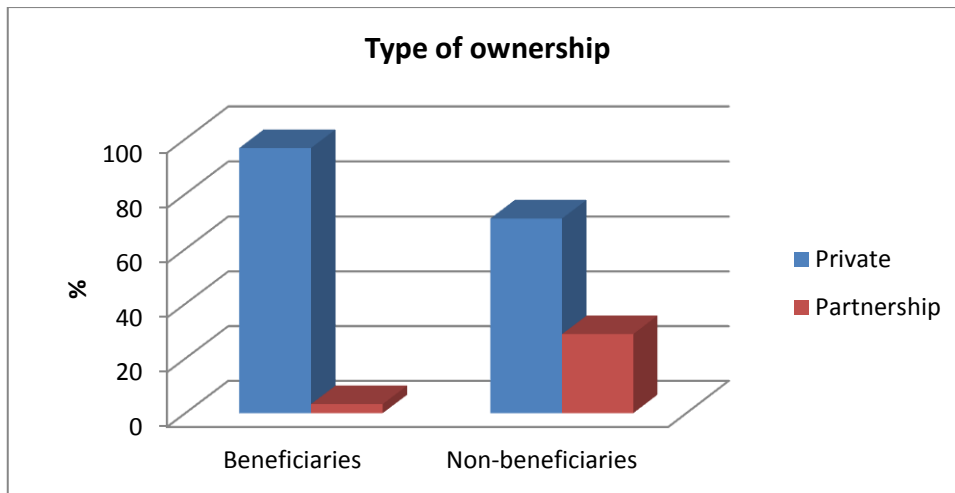
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.11.

b. Computed only for a 2x2 table

#### ***4. Beneficiaries and non-beneficiaries holdings and information***

##### ***Type of ownership***

Figure 4.1 shows that 71.1% of non-beneficiaries have private holdings and 28.9% are group holders. While more than 95% of beneficiaries own private holdings and about 3.3% they are partnership,



**Figure 4.1 Type of ownership for Beneficiaries and Non-beneficiaries**

While The Chi square test shows that there were significant differences ( $P < 0.05$ ) in the type of ownership between the beneficiaries and non-beneficiaries  $p = 0.000$ .

**Table 4.11 Chi-square tests type of ownership for beneficiaries and non-beneficiaries**

**Chi-Square Tests Type of ownership for Beneficiaries and Non-beneficiaries**

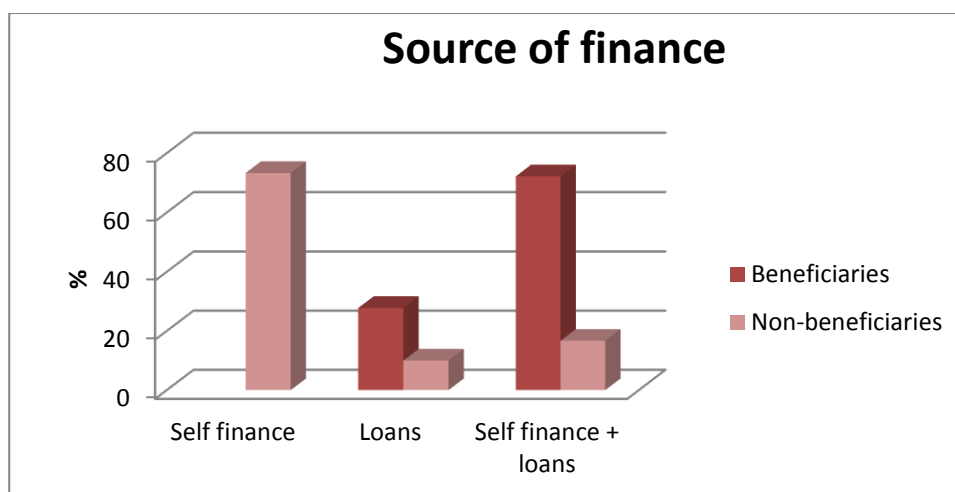
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	24.356 <sup>a</sup>	1	.000		
Continuity Correction <sup>b</sup>	22.446	1	.000		
Likelihood Ratio	27.478	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	24.221	1	.000		
N of Valid Cases	180				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.50.

b. Computed only for a 2x2 table

### **Source of finance**

Figure 4.2 shows that unlike the beneficiaries most (73.3%) of non-beneficiaries depend on their own resources. Whereas about 72.2% of the beneficiaries rely on loans beside their own resources and 27.8% of them depend entirely on loans.



**Figure 4.2 Source of Finance for Beneficiaries and Non-beneficiaries**

**Type of activity**

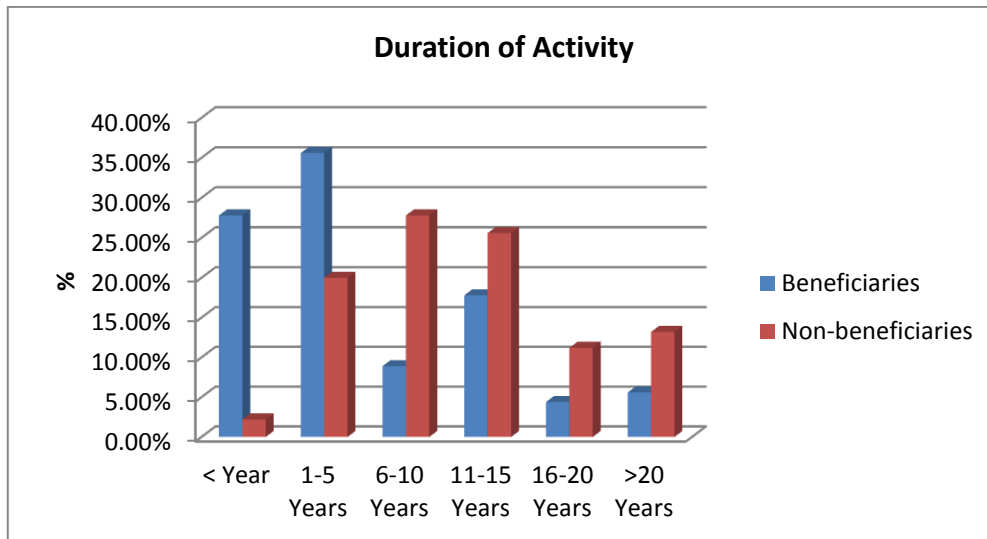
**Table 4.12 Type of activity for Beneficiaries and Non-beneficiaries**

Type of activity	Beneficiaries		Non-beneficiaries	
	Frequency	Percent	Frequency	Percent
Calves fattening	-	-	1	1.1
Sheep fattening	-	-	12	13.3
Breeding & fattening of sheep	66	73.3	-	-
Breeding of sheep & goats	18	20.0	43	47.8
Breeding of goats, sheep & cattle	6	6.7	10	11.1
Cattle breeding	-	-	7	7.8
Poultry production	-	-	4	4.4
Export of livestock	-	-	2	2.2
Breeding of goats	-	-	8	8.9
Breeding of sheep & cattle	-	-	3	3.3
Total	90	100.0	90	100.0

Table 4.12 shows that the non-beneficiaries are involved in many activities with considerable percentage (47.8%) practicing breeding of sheep and goats. While the main type of activities of most of the beneficiaries are breeding and fattening of sheep which account 73.3%.

### ***Duration of Activity***

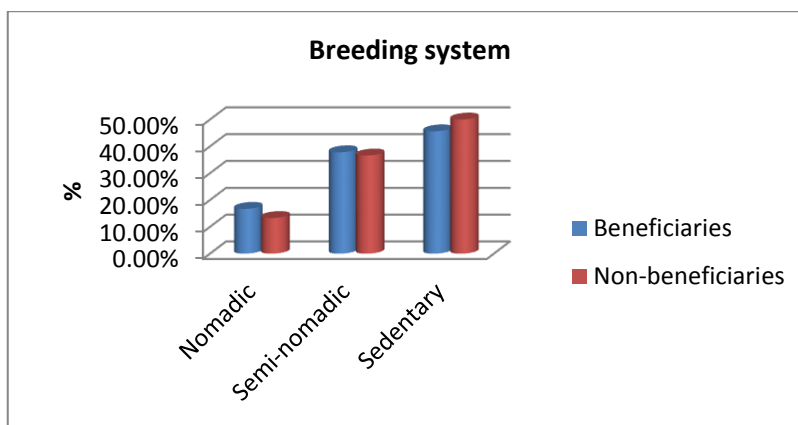
The results obtained from survey showed that 50.6% of the beneficiaries were involved in the breeding activity during the project cycle, while 53.4% of non-beneficiaries were in the breeding activities for 6 to15 years, is before the project inception, see figure 4.3 below.



***Figure 4.3 Duration of Activity***

### ***Breeding systems***

The survey results showed that about 45.6% of the beneficiaries are sedentary and about 16.7% and 37.8% are nomads and semi-nomads, respectively. On the other hands 13.3%, 36.6% and 50.0% of non-beneficiaries are sedentary, nomads and semi-nomads, respectively (Figure 4.4).



***Figure 4.4 Breeding System for Beneficiaries and Non-beneficiaries***

### 5. Type and size of the herds of beneficiaries

The results obtained from Sennar and Blue Nile States showed that sheep are the major type of animals raised by 98.0.7% and 65.0% of the beneficiaries in the two States, respectively. The herd size in SS ranges between 21 to 100 heads, 52.0% of beneficiaries own between 21-50 and 32.0% of them own 51-100 heads of animals. Whereas in BNS the herd size ranges between one to twenty, 77.5% and 20.0% of the beneficiaries own 1-20 and 21-50 heads of animals, respectively (table 4.13). The Chi square revealed that there's a significant difference ( $P < 0.05$ ) in herds size between two States.

**Table 4.13 Type and size of the herds of beneficiaries**

		Sennar State		Blue Nile State	
		Frequency	Percent	Frequency	Percent
		50	100.0	40	100.0
<b>Herd Type</b>	<b>Sheep</b>	49	98.0	26	65.0
	<b>Sheep and goat</b>	1	2.0	14	35.0
	<b>Total</b>	50	100.0	40	100.0
<b>Herd Size</b>	<b>1-20</b>	8	16.0	31	77.5
	<b>21-50</b>	26	52.0	8	20.0
	<b>51-100</b>	16	32.0	1	2.5
	<b>Total</b>	50	100.0	40	100.0

**Table 4.14 Chi-square tests herd size between two states**

**Chi-Square Tests Herd Size between two states**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.260 <sup>a</sup>	4	.000
Likelihood Ratio	63.369	4	.000
Linear-by-Linear Association	40.084	1	.000
N of Valid Cases	90		

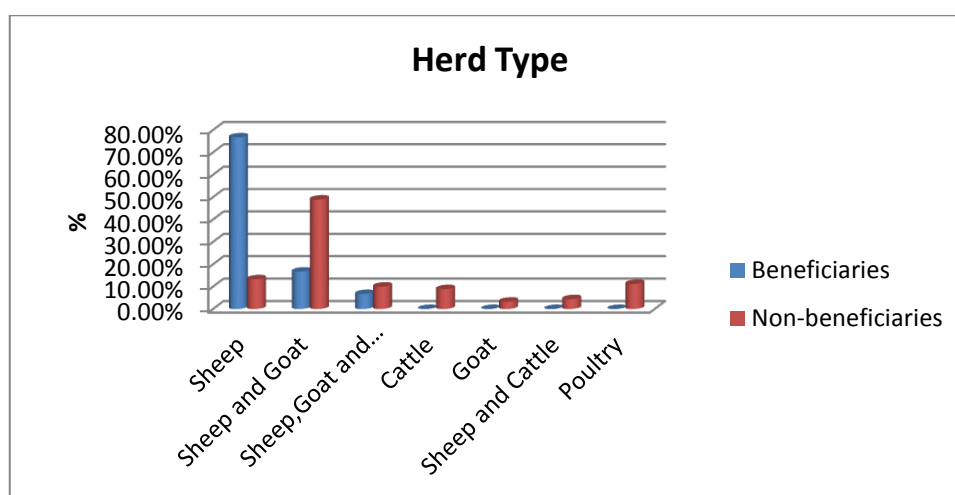
a. 6 cells (60.0%) have expected count less than 5. The minimum expected count is .44.

## 6. Type of herd of the beneficiaries and non-beneficiaries

As seen in figure 4.5 the majority about 76.7% of the beneficiaries have sheep as their main type of herd, while 48.9% of non-beneficiaries have sheep & goat as the main type of herd. The rest possess cattle and poultry.



**PICTURE1. SHEEP AND GENDER ISSUE**

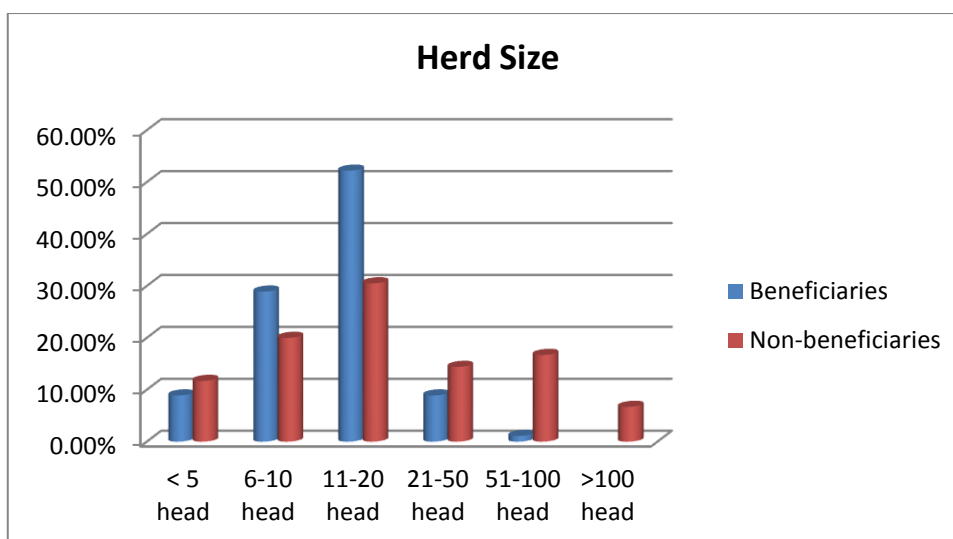


**Figure 4.5 Herd Type**

## 7. Size of herd

The herd size of non-beneficiaries ranges from less than 5 and more than 100. More than 20% of non-beneficiaries own more than 50 heads, compared to the beneficiaries where 52.2% of them have 11 to 20 head of animals and no single beneficiary possess more than 100 heads (Figure 4.6).





**Figure 4.6** Size of the herds of beneficiaries and Non-beneficiaries

**8. Beneficiaries purpose of the production**

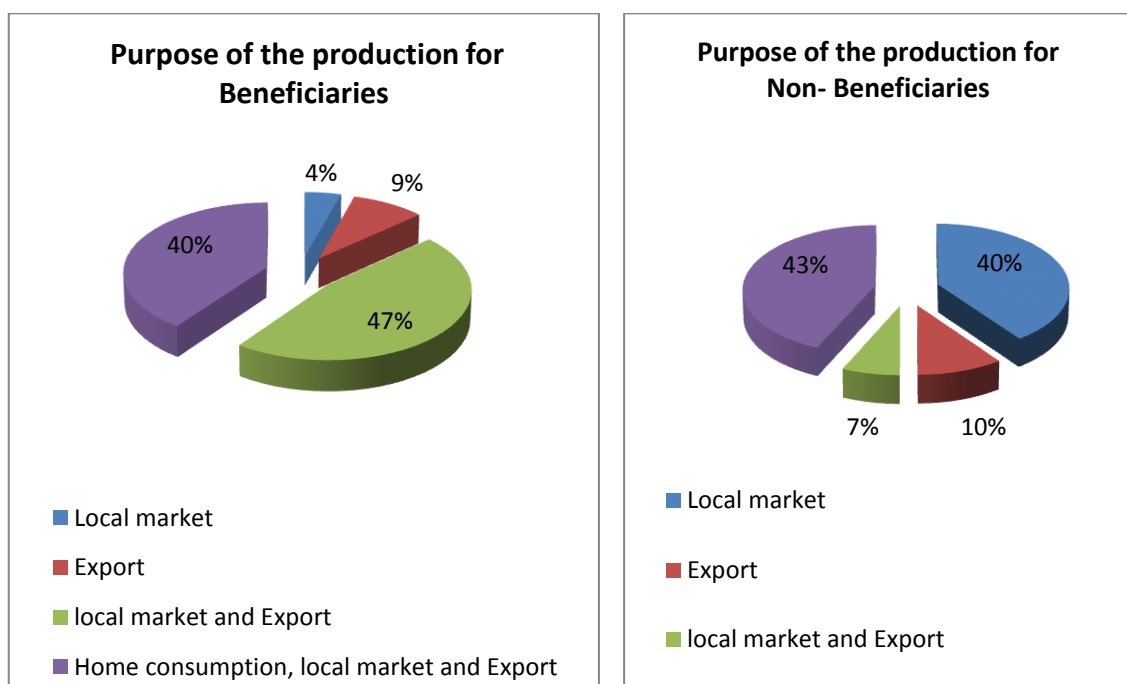
The survey shows that about 36.7% of the beneficiaries keep animals for home consumption, local market and export, and about 20.0% of them produce for local market and export and 23.3% of them operate for the local market only while 20.0% produce for export specifically (table 4.15).

**Table 4.15** Beneficiaries purpose of the production

Purpose of the production	Sennar State		Blue Nile State		Total	
	Freq.	%	Freq.	%	Freq.	%
<b>Local Market</b>	<b>13</b>	<b>26.0</b>	<b>8</b>	<b>20.0</b>	<b>21</b>	<b>23.3</b>
<b>Export</b>	<b>12</b>	<b>24.0</b>	<b>6</b>	<b>15.0</b>	<b>18</b>	<b>20.0</b>
<b>Local market and Export</b>	<b>9</b>	<b>18.0</b>	<b>9</b>	<b>22.5</b>	<b>18</b>	<b>20.0</b>
<b>Home consumption, local market and export</b>	<b>16</b>	<b>32.0</b>	<b>17</b>	<b>42.5</b>	<b>33</b>	<b>36.7</b>
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>

**9. The purpose of the production for Beneficiaries and Non-beneficiaries**

From the survey findings, figure 4.7 shows that, 47.0% of the beneficiaries reported that, the purpose of the production is for local and export markets, while only 6.0 % of non-beneficiaries reported that the purpose of the production is for local and export markets. 40.0% of the beneficiaries and 39.0% of non-beneficiaries explained that the production is for home consumption, local markets and export, whilst 9.0% and 4.0% of the beneficiaries and 36.0% and 9.0% of non-beneficiaries pointed that their production is for export and local markets, respectively.



**Figure 4.7 The purpose of production for Beneficiaries and Non-beneficiaries**

**10. Veterinary care provided by beneficiaries to their Animals**

Table 4.16 indicates that the beneficiaries in SS are more care oriented to their animal health than those in BNS. Routine veterinary care is practiced by 98.0% of the respondents in SS, while 77.5% of beneficiaries in BNS provided veterinary services when there is emergency case. In BNS 22.5% of them provide no veterinary care.

**Table 4.16 Veterinary care provided by beneficiaries to their Animals**

Veterinary Care	Sennar State		Blue Nile State		Total	
	Frequency	%	Frequency	%	Frequency	%
Continuous supervision + emergency	36	72.0	0	0	36	40.0
Emergency	13	26.0	31	77.5	44	48.9
None	1	2.0	9	22.5	10	11.1
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>

There was significant positive correlation ( $r= 0.364$ ) between veterinary care and increase of number of herd,  $P=0.000$ .

**Table 4.17 Correlations between veterinary care and increase in the number of herd during the project period**

**Correlations**

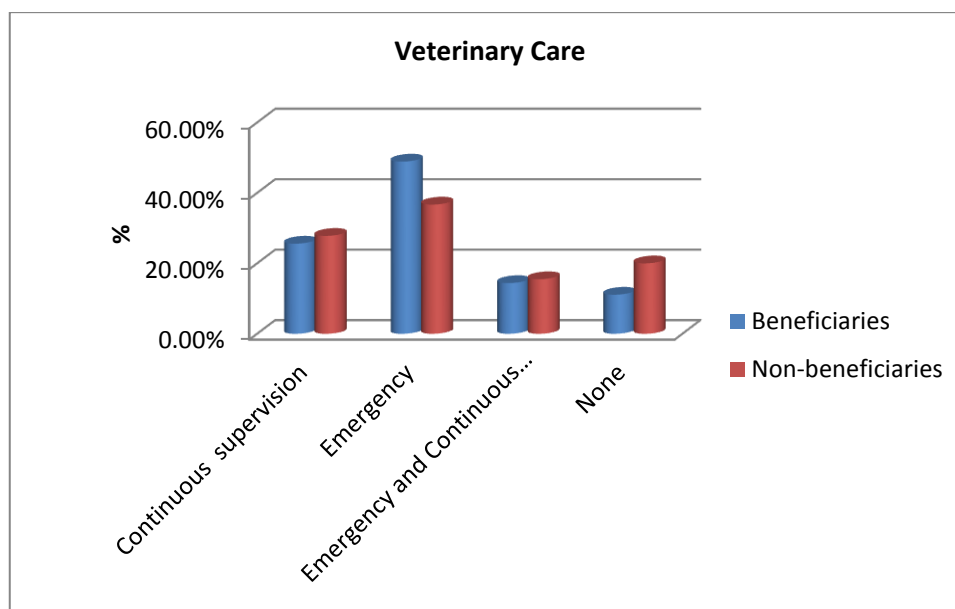
		Veterinary Care	How much was the increase in the number of herd during the project period
Veterinary Care	Pearson Correlation	1	.396**
	Sig. (2-tailed)		.000
	N	90	90
How much was the increase in the number of herd during the project period	Pearson Correlation	.396**	1
	Sig. (2-tailed)	.000	
	N	90	90

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**11. Veterinary care provided to the animals of beneficiaries and non-beneficiaries**

The survey results presented in figure 4.8 show veterinary services for the respondents. It appears clearly that the beneficiaries give more veterinary care to their animals than non-beneficiaries. 48.9% of the beneficiaries pointed that they look for veterinary care when there is an emergency, 25.6% practices continuous veterinary care supervision, 20.4% provide veterinary

care in case of emergency and continuous supervision, and 5.1% carry out no veterinary care at all. 27.8%, 36.7%, 15.5% of non-beneficiaries carry out continuous supervision, emergency, emergency and continuous supervision respectively, while 20.0% of non-beneficiaries pointed that they provide no veterinary care.



**Figure 4.8** *Veterinary care provided to the animals*

### **12. Sources of fund for the restocking projects**

To finance the restocking activities the ILPM project organized the beneficiaries in village development committees (VDCs). The project through the VDCs provided each beneficiary by 80% of the required capital on Murabaha mode, with nominal earnings for duration of six months. Each beneficiary had received 5 ewes and 10 lambs with slight variation due to differences in prices. Murabaha contract had been prepared and signed by all recipients of loans. All beneficiaries contributed to the capital of the business by 20%. The beneficiaries share was in cash and/ or kind. In SS and BNS the beneficiaries shared in the capital of the business by 5% in cash, and 15% in kind, (table 4.18) and the rest of the fund obtained from the project (80%).

**Table 4.18 Sources of fund for the Restocking projects**

Community	Locality	Cost (SDGs).							Beneficiaries.
		Project 80%	Initial Community's contribution						Total HHs
			Cash	%	Kind	%	Total	%	
<b>Wadalfaki</b>	<b>Damazin</b>	45600	2850	5	8550	15	11400	20	<b>20</b>
<b>Wadbaloola</b>		45600	2850	5	8550	15	11400	20	<b>20</b>
<b>Sub total</b>									<b>40</b>
<b>Elbogaa</b>	<b>Abuhjar</b>	52,705	3294	5	9882	15	13176	20	<b>20</b>
<b>Elwanasb</b>		66,000	4125	5	12375	15	16500	20	<b>10</b>
<b>Omnamil</b>		52,705	3294	5	9882	15	13176	20	<b>20</b>
<b>Sub total</b>									<b>50</b>
<b>Total</b>									<b>90</b>

Source: Improving Livestock Production & Marketing Project, Report 2013

## 4.1.2 The Impact of the project

### 1. The economic impacts of the project

From the economic point of view the study revealed that the project positively impacted the beneficiaries by increasing their average herds' size by 44.1% which used as a source of food beside income generation, their average increased incomes by 64.5%. Some of them (4.4%) owned real assets and others (25.6%) rehabilitated and introduced some improvements to their houses as indicated in table 4.19.

**Table 4.19 The economic indicators of the impacts of the project**

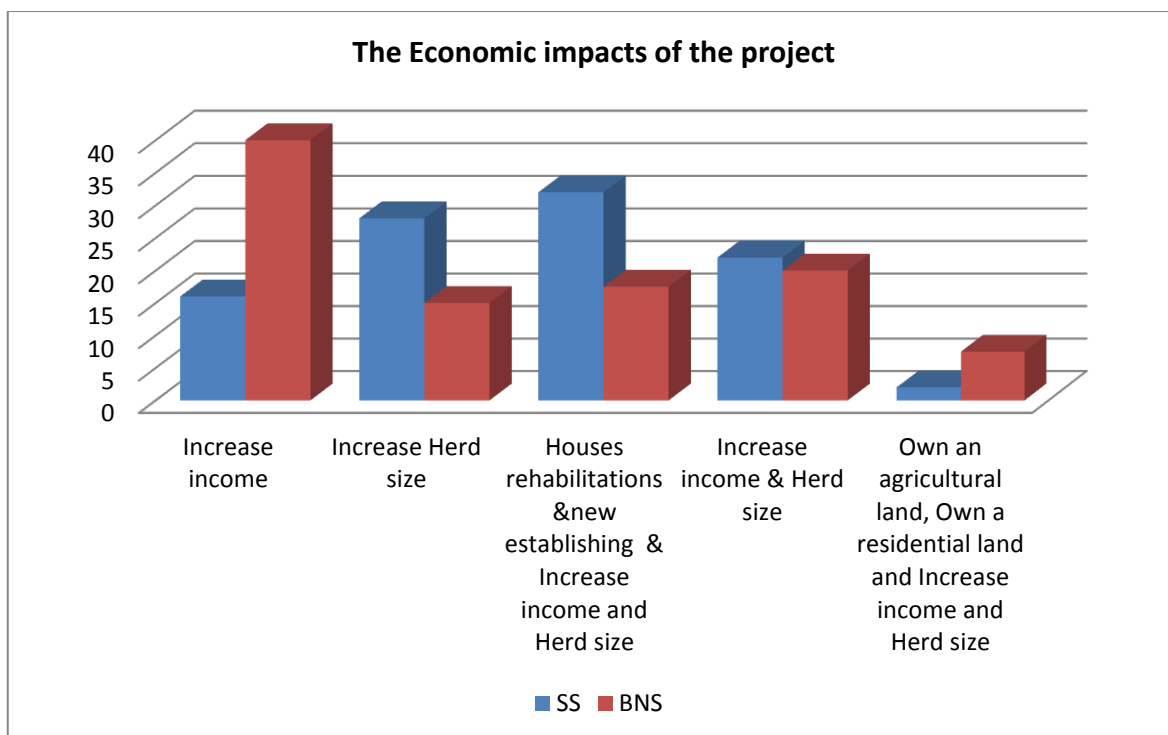
Indicator	Baseline Value	Target Values	Actual Value Achieved at Target Years	change	Impact Assessment of the Project	Source of Data
<b>Date achieved</b>	<b>2009 (base year)</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Economic Impact</b>	
<b>Indicator1</b>	<b>Average herd size of small ruminants per household in targeted areas (No.)</b>					
Value quantitative	Sheep 15	Sheep 25	Sheep 34	44.1%	Herd size increase	Interviews and discussion
<b>Indicator2</b>	<b>Average Annual income (SDG)</b>					
Value quantitative	900	1250	1395	64.5%	Annual income increase,	Case study
<b>Indicator3</b>	<b>owning of animals as food sources for domestic use</b>					
Value quantitative	15 sheep	25Sheep	34Sheep	44.1%	Provide Food security Poverty alleviation	Interviews and discussion
<b>Indicator 4</b>	<b>Owning real assets (No.)</b>					
Value quantitative	0	90	4	4.4%	Real assets: Own agricultural lands/orresidential land	Field survey

<b>Indicator 5</b>	<b>House Rehabilitation and improvement (No.)</b>					
Value quantitative	0	90	23	25.6%	Improve of household situation	Filed survey

Table 4.20 shows that the income of 26.7% of the beneficiaries had increased. In BNS the percentage of those whose income had increased is more than that in SS. The percentage of the beneficiaries whose herd size had increased in SS is more than those in BNS. In SS the percentage of beneficiaries who made new establishment and rehabilitation of houses are more than those in BNS, while in BNS the beneficiaries who owned new residential or agricultural lands is more than those in SS.

**Table 4.20 The economic impacts of the project based on the opinions of the beneficiaries**

<b>The economic impacts of the project</b>	<b>Sennar State</b>		<b>Blue Nile State</b>		<b>Total</b>	
	<b>Frequenc y</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>
Increase income	8	16.0	16	40.0	24	26.7
Increase herd size	14	28.0	6	15.0	20	22.2
Houses rehabilitations & new establishing & increase income and herd size	16	32.0	7	17.5	23	25.6
Increase income & herd size	11	22.0	8	20.0	19	21.1
Own an agricultural land, own a residential land and increase income and herd size	1	2.0	3	7.5	4	4.4
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>



**Figure 4.9 The Economic impacts of the project**

From the 23 participants who introduced rehabilitations and new establishments in their houses, Aisha Elsadig was closely interviewed. She mentioned that she received sheep from the project for fattening and breeding. Her herd size has increased up to 65% which in turn increased her annual income and helped her to rehabilitate and improved her house.

Mohamed Ahmed Ibrahim is one of those who has own an agricultural land. He mentioned that he was a farmer and herder at the same time. He participated in the project breeding and fattening of sheep. He benefited from the project by that his herd size increased to 50%, resulting in an increase in his annual income. The matter that enabled him to own 5 feddan of an agricultural land during the project period which helped him to expand his agricultural activities and livelihood.

**a. Increase in annual income of the beneficiaries**

Table 4.21 shows that 32.2% of the beneficiaries their income has increased by 40-60% after joining the project. Nearly one third of the beneficiaries had



their incomes more than doubled compared to their initial incomes. However, the beneficiaries in BNS experienced more income growth than in SS.

**Table 4.21 Increase in annual income of the beneficiaries**

Increase in annual income during the project period	Sennar State		Blue Nile State		Total	
	Freq.	%	Freq.	%	Freq.	%
<b>10% - 20%</b>	1	2.0	0	0	1	1.1
<b>21% - 30%</b>	3	6.0	0	0	3	3.3
<b>31% - 40%</b>	4	8.0	4	10.0	8	8.9
<b>41% - 50%</b>	9	18.0	3	7.5	12	13.3
<b>51%- 60%</b>	8	16.0	9	22.5	17	18.9
<b>61% - 70%</b>	4	8.0	2	5.0	6	6.7
<b>71% - 80%</b>	1	2.0	1	2.5	2	2.2
<b>81% - 90%</b>	7	14.0	6	15.0	13	14.4
<b>91% -100%</b>	10	20.0	4	10.0	14	15.6
<b>&gt; 100%</b>	3	6.0	11	27.5	14	15.6
<b>Total</b>	50	100.0	40	100.0	90	100.0

From the group discussion; the income of different beneficiaries involved in restocking project has increased. All targeted beneficiaries explained that, the restocking projects affected their household income positively, which is used and contributed to the family food security, health and education aspects..etc.

***b. Increase in the herd size during the project period***

Table 4.22 shows that the herd size of 50.0%, 47.5% of beneficiaries has increased during the project period by 71% -100% in SS and BNS respectively. While the herd size of 37.5% of beneficiaries has increased by more than100% in BNS. It is worth mentioning that about 35.6% of

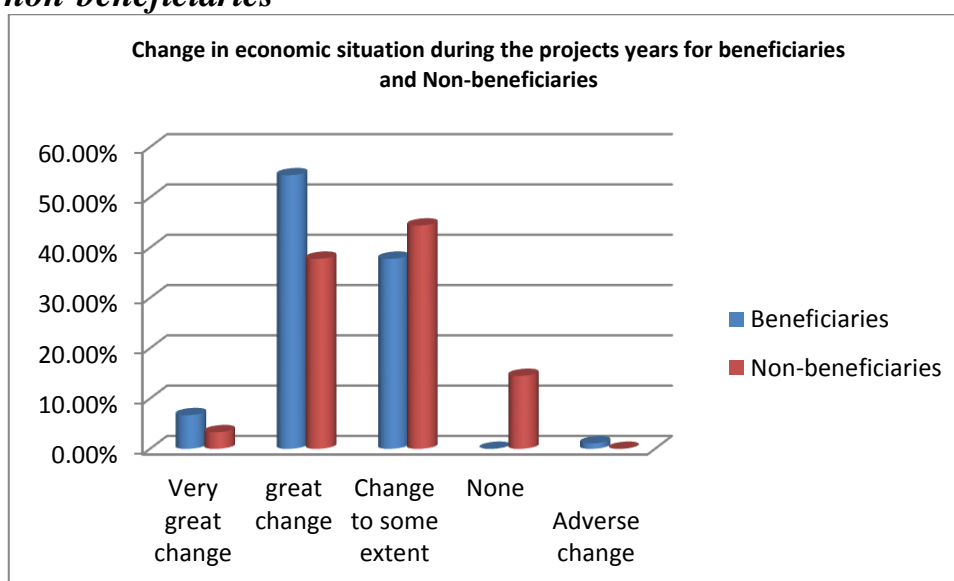
beneficiaries involved in the production activities with the inception of the project i.e between 1-5 years ago, out of those, 27.8% practiced their activity in less than one year.

**Table 4.22 Increase in herd size during the project period**

%Increase in the herd size	Sennar State		Blue Nile State		Total	
	Freq.	%	Freq.	%	Freq.	%
10% - 30%	5	10.0	0	0.0	5	5.6
31% - 50%	8	16.0	1	2.5	9	10.0
51% - 70%	9	18.0	5	12.5	14	15.6
71% - 100%	25	50.0	19	47.5	44	48.8
> 100%	3	6.0	15	37.5	18	20.0
<b>Total</b>	<b>50</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>	<b>90</b>	<b>100.0</b>

According to interviews with Awatif and Azeem (2015), ILPMP activities on target rural communities have great impacts on livestock production (restocking subproject) which increased herd size per household.

***c. Comparison of the economic impact of the project on beneficiaries and non-beneficiaries***

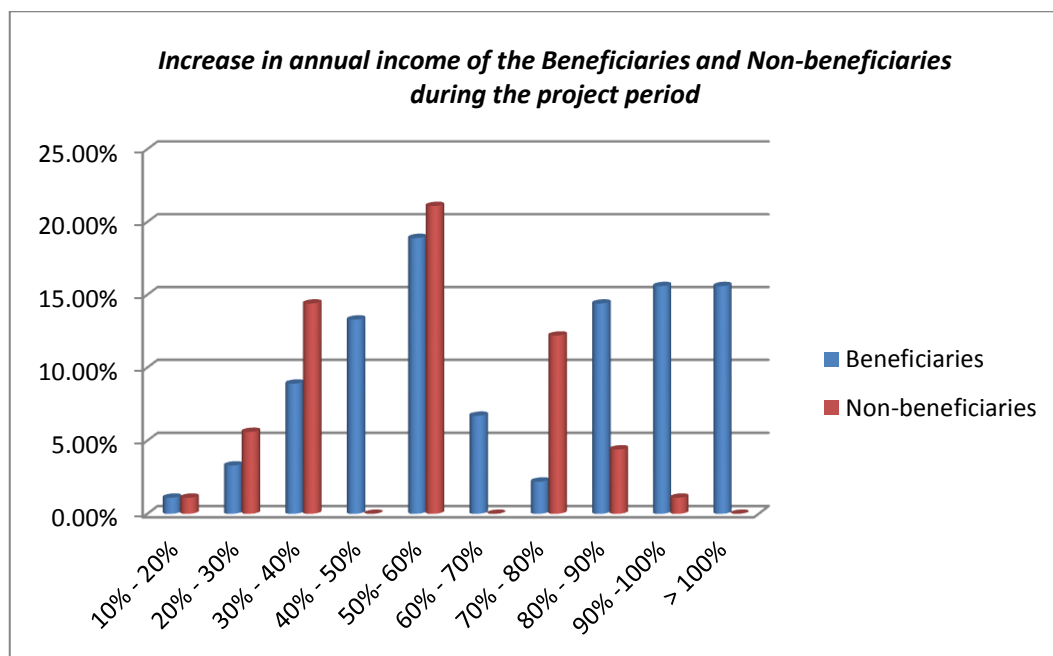


***Figure 4.10 Change in economic situation during the project years for Beneficiaries and Non-beneficiaries***

Figure 4.10 above presents the opinions of the investigated population on the change in their economic situation, 54.4% of the beneficiaries and 37.8% of non-beneficiaries reported that there were a great changes in their economic situation during the last five years, 37.8% of beneficiaries and 44.4% of non-beneficiaries indicated that there were some changes. For 6.7% of the beneficiaries and 3.3% of non-beneficiaries there was very great changes, and about 14.5% of non-beneficiaries indicated there was no changes in their economic situation during the project years..

***d. Increase in annual income of the Beneficiaries and Non-beneficiaries during the project period***

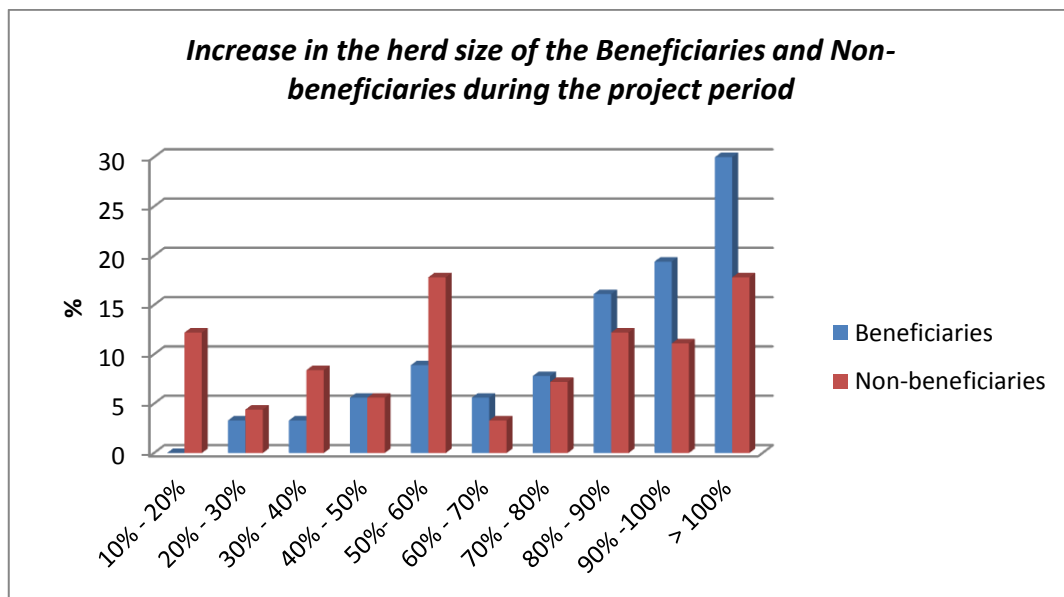
The result obtained from the survey shows that 73.4% of the beneficiaries had an increase in their annual income during the project period ranging between 50%->100%, while the annual income of 38.8% of non-beneficiaries had increased in the range of 50%->100, see figure 4.11 below.



***Figure 4.11 Increase in annual income of the beneficiaries and non-beneficiaries during the project period***

***e. Increase in the herd size of the Beneficiaries and Non-beneficiaries during the project period***

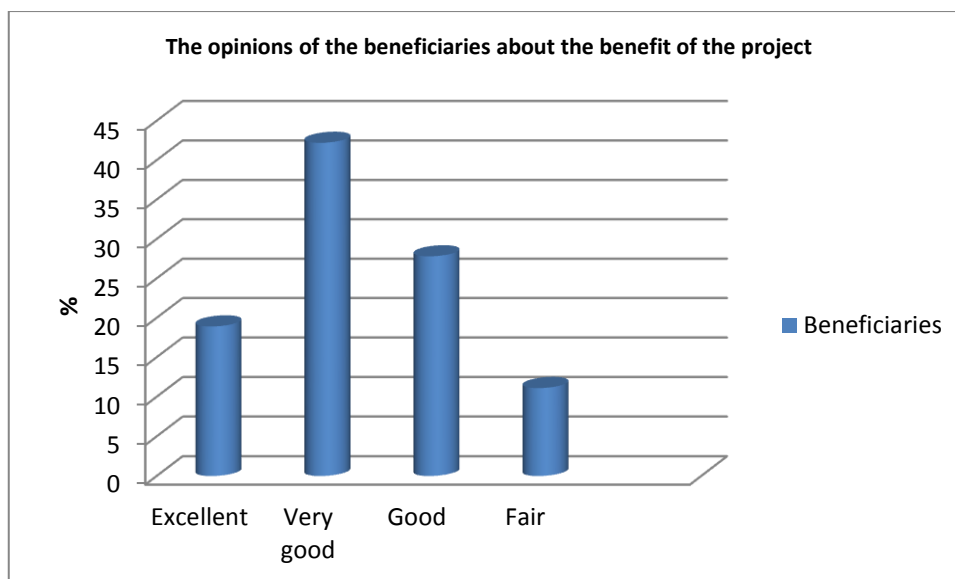
The survey shows that 87.8% of beneficiaries has 50% - >100% increase in their herd size, while 69.4% of the non-beneficiaries has an increase of 50% - >100% of their herd size, figure 4.12.



***Figure 4.12 Increase in the herd size of the Beneficiaries and Non-beneficiaries during the project period***

***f. The opinions of the beneficiaries about the benefit of the project***

The chi square revealed that there were significant differences ( $P < 0.05$ ) in the opinions of the beneficiaries in the two States about the impact of the project. 42.2% of the beneficiaries explained that the impact of the project is very good. While 11.1% of them mentioned that the impact of the project is fair. Figure 4.13.



**Figure 4.13** *The opinions of the beneficiaries about the benefit of the project*

**Table 4. 23** **Chi-Square Test s-the opinions of the beneficiaries in the two States about the impact of the project**

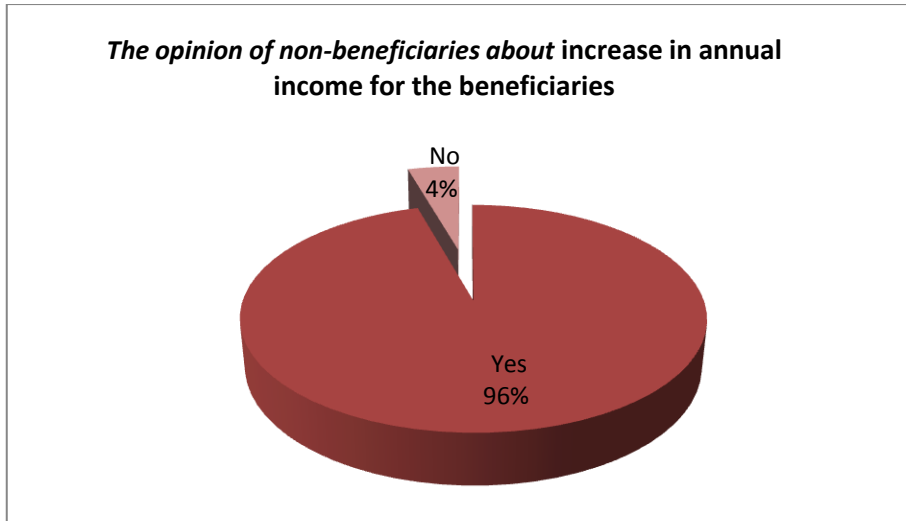
**Chi-Square Tests-The opinions of the beneficiaries in the two States about the impact of the project**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.897 <sup>a</sup>	3	.005
Likelihood Ratio	13.375	3	.004
Linear-by-Linear Association	.017	1	.897
N of Valid Cases	90		

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.44.

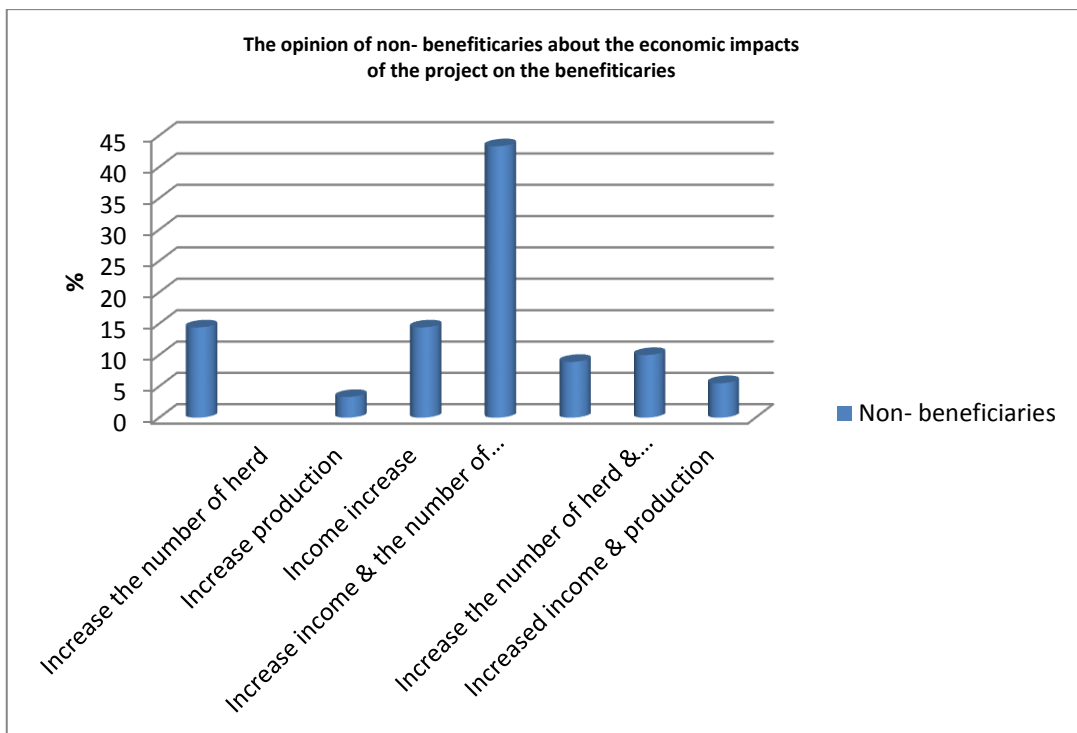
**g. The opinion of non-beneficiaries about the economic impact of the project on the beneficiaries.**

About 96% of non-beneficiaries pointed that, the project led to the increase of annual income of the beneficiaries, figure 4.14.



**Figure 4.14** *The opinion of non-beneficiaries about increase in annual income for the beneficiaries*

For the non- beneficiaries the positive impacts on the beneficiaries is due to the increase of the annual income and herd size and improvement of the animal production, (figure 4.15).



**Figure 4.15** *The opinion of non- beneficiaries about the economic impacts of the project on the beneficiaries*

## 2. The social impacts of the project

From the social point of view the study revealed that although the project did not attain the general goal of gender balance, yet it reacted positively in this respect by supporting 27 females (30%) out of the total number (90). The project also created jobs, and built the capacity of the beneficiaries through education and training and strengthening the social relations as indicated in table 4.24.

**Table 4.24 The social indicators of the impacts of the project**

Indicator	Baseline Value	Target Values	Actual Value Achieved at Target Years	Change	Impact Assessment of the Project	Source of Data
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Social impact</b>	
<b>Indicator 1</b>	<b>Direct Project Beneficiaries of which female (%)</b>					
Value quantitative	0	90	27	30%	Gender issue	Field Survey 2014
<b>Indicator2</b>	<b>Improved community water points constructed or rehabilitated (number)</b>					
Value quantitative	0	12	14	116.7%	water use+ (revenue use in schools, hospital, training & awareness	Interviews and Group discussion
<b>Indicator 3</b>	<b>Training of Community animal health workers and in networks associated with veterinarians (number)</b>					
Value quantitative	0	35	43	122.9%	Training, skills and awareness	interviews
<b>Indicator 4</b>	<b>Social Relationship</b>					
Value Qualitative		The project activities tend to organize the community in the Village Development Committee (VDC).The community was been able to			Communities social relationship	Azeem (2015)

		identify plan, implement, and manage their subprojects. These committees take over the project activities and thus sustained the process.			
<b>Indicator 5</b>	<b>Job creation</b>				
Value Qualitative		The project created job opportunities to those who lost their animals and to those practice animal production for the first time		Job created	Interviews
<b>Indicator 6</b>	<b>Education of children and brotherhood (number)</b>				
Value quantitative	39 of the beneficiaries have not sent their children to school due to inability to meet education expenses		The project enabled 39 of the beneficiaries to send their children and brothers to school.	Social life	Field survey
<b>Indicator 7</b>	<b>Marriage (number)</b>				
Value quantitative	6 of the beneficiaries were single and two of them have one wife		The six single beneficiaries get married; moreover two others get married for the 2 <sup>nd</sup> time.	Social Life	Field Survey

***a. The opinion of the beneficiaries on the impact of the project on their social life***

From social point of view, enrolling in the project activities induces some changes in the social status of the beneficiaries. Social posts and children and brother education came on the top of these changes. Marriage for the first and second time also appears among these changes.

In the BNS 55.0% and 42.5%, of the beneficiaries indicated that the changes in their social status through education of children and brotherhood and marriage for the second time and social posts, education of children and brotherhood & married for the first time respectively. While in SS 68.0% and 18.0% of them indicated the changes in their social status through social



posts & education of children and brotherhood, and social posts and education of children and brotherhood & married for the first time respectively. While few of them 14.0% indicated the changes through education of children and brotherhood & married for the second time in SS (table 4.25).

**Table 4.25 The opinion of the beneficiaries about the social impacts of the project**

Changes in social status	Sennar State		Blue Nile State		Total	
	Freq.	%	Freq.	%	Freq.	%
Education of children and brotherhood & married for the second time	7	14.0	22	55.0	29	32.2
Social posts & Education of children and brotherhood	34	68.0	1	2.5	35	38.8
Social posts, Education of children and brotherhood & married for the first time	9	18.0	17	42.5	26	28.8
Total	50	100.0	40	100.0	90	100.0

The opinion of the beneficiaries about the impact of the project indicates that they are generally satisfied with the results they obtained by participating in the restocking project.

The chi square test shows that there were significant differences ( $P < 0.05$ ) in the social impact of the project on the beneficiaries in BNS and SS  $p = 0.000$ .

**Table 4.26 Chi-square tests social impact between two states**

**Chi-Square Tests** Social impact between two states

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	40.726 <sup>a</sup>	2	.000
Likelihood Ratio	48.975	2	.000
Linear-by-Linear Association	.458	1	.499
N of Valid Cases	90		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.56.

Communication with Awatif and Azeem (2015) pointed that, ILPMP activities in the target rural communities have great impacts on animal health by controlling of the epidemic, zoonotic and contagious diseases through vaccination and extension messages, and adoption of scientific animal feeding, and also training of 43 veterinary animal health workers (CAHWs) who acted as a link between the veterinary centers and the communities, the matter that reflected in improved animals health.

**b. Indirect benefits of the project**

The indirect benefits of the project it's clearly observed by the researcher, water points were the main services provided by the ILPMP to the communities, about (14) established or/and rehabilitated water yard were done. Established of (5) schools and (6) hospital, and also training and extension services provided by the project to raise the awareness of the beneficiaries and non-beneficiaries.

Project coordinator mentioned that, ILPMP other activities like water subprojects - water yards - (see table 4.27) has great effects on the surrounding environment which provided the areas by safe drinking water. It is primarily benefiting women, who spend considerable time fetching water every day - and also reduced costs of water for livestock and household use (appendix7).



**PICTURE2. COMMUNITY WATER YARD**

**Table 4.27 Present's water points distribution per localities**

<b>Damazin</b>	1. Jerawa
	2. Goli
	3. Seedak
	4. Wad elfas
	5. Elnasrab
	6. Yarwa
<b>Abuhujar</b>	7. Sinjha Livestock Market
	8. Esahba
	9. Elmegawir
	10. Warket
	11. Um arda
	12. Um kaiarian
	13. Gabal Bona
	14. Eltarow

**Source: ILPMP Monitoring and Evaluation Unit, January – March 2012 Progress Report**

The participatory approach adopted and the involvement of the community through the village development committees (VDCs) in the planning and execution of the project acted to ensure the common goal of sustainable development. The village development committees (VDCs) used the animals

paid back by the beneficiaries to support new ones, thus the original fund was recycled multiple times and more households benefited from this.

**c. The benefits from the project for non- beneficiaries**

Table 4.28 shows that, 66.7% of non-beneficiaries acknowledge that the project provided marketing services, 6.7% of them mentioned that the project provided veterinary and marketing services, and 5.6% indicated that the project benefits are through veterinary services and extension & awareness. Meanwhile 15.5% of non-beneficiaries claimed that there are no benefits from the project.

**Table 4.28 The benefits of the project for non- beneficiaries**

The benefit	Non-beneficiaries	
	Frequency	Percent
Provide veterinary services	3	3.3
Provides marketing services	60	66.7
extension & awareness	2	2.2
Provide veterinary& marketing services	6	6.7
Veterinary services, provide extension & awareness	5	5.6
None	14	15.5
Total	90	100.0

***d. Comparison of the Changes in Social status for Beneficiaries and Non-beneficiaries***

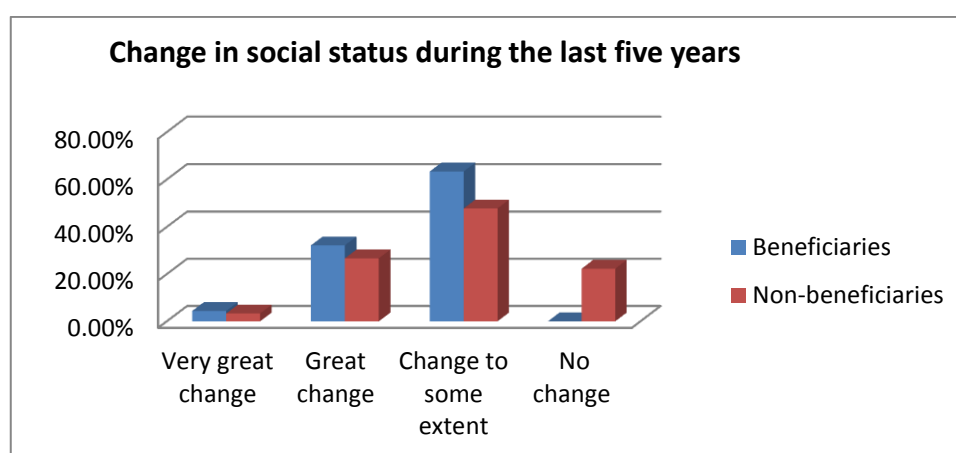
Table 4.29 shows that 32.2%, 38.9 and 28.9% of the beneficiaries indicated the changes in their social status through education of children, brotherhood, marriage for the second time *and* education of children, brotherhood & social posts *and* education of children, brotherhood, married & social posts respectively. While 5.6%, 56.7% and 18.9 % of non-beneficiaries explained the changes in their social status through education of children, brotherhood, marriage for the second time *and* education of children, brotherhood & social posts *and* education of children, brotherhood, marriage & social posts

respectively, meanwhile 18.9% of non-beneficiaries mentioned there is no changes in their social status.

**Table 4.29 Change in social status for beneficiaries and non-beneficiaries**

	Beneficiaries		Non-beneficiaries	
	Frequency	Percent	Frequency	Percent
Education of children, brotherhood, marriage for the second time	29	32.2	5	5.6
Education of children, brotherhood & social posts	35	38.9	51	56.7
Education of children, brotherhood, marriage & social posts	26	28.9	17	18.9
No changes	0	0	17	18.9
Total	90	100.0	90	100.0

Figure 4.16 below shows that 63.4% of beneficiaries and 47.8% of non-beneficiaries indicated that there was a change to some extent in their social status during the last five years, and 32.2% of beneficiaries and 26.7% of non-beneficiaries indicated that there was great changes, 4.4% of beneficiaries and 3.3% of non-beneficiaries mentioned that there was very great changes whereas, 22.3% of non-beneficiaries indicated that there was no changes in their social status.



**Figure 4.16 Change in social status of the beneficiaries and non-beneficiaries during the project years**

**3. The impact of the project on the welfare of the communities and their surrounding areas**

From the environment point of view the study revealed that the general environment was positively impacted by establishment of plant nurseries, improvement of community health by providing safe water and training many health workers as indicated in table 4.30.

**Table 4.30 The welfare of the communities indicators of the impacts of the project**

Indicator	Baseline Value	Target Values	Actual Value Achieved at Target Years	Change %	Impact Assessment of the Project	Source of Data
Date achieved	2009	2011-2014		Change %	Environment impact	
<b>Indicator 1</b>	<b>Rehabilitation of communities water points (number)</b>					
Value quantitative	0	12	14	116.6%	Safe Water supply to human and animals help in improving the environment health.	Interviews and Discussion
<b>Indicator 2</b>	<b>Training of communities health workers (number)</b>					
Value quantitative	0	35	43	122.9%	Improved animal health and human health lead to healthy communities and environment	Interviews
<b>Indicator 3</b>	<b>Establishment of plant nurseries and distribution of plant</b>					
Value quantitative	0	14	9	64.3%	Establishment of plant nurseries	Researcher observation,

					and distributio n of plants helps in improving surroundin g area by refresh air.	intervi ews
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## **4.2 The Rehabilitation of Livestock Markets**

This section includes the survey results from the two livestock markets in Blue Nile State (Damazin livestock market) and Sennar State (Sinjha livestock markets).

### **4.2.1 The rehabilitations introduced by the project**

The project document pointed that ILPMP initially aimed to rehabilitate livestock markets in Sinjha and Damazin. The markets selection was based on the following criteria: the market must be owned by localities, it must be of a high economic relevance, agreement of the localities or the States to subcontract in market operations and to facilitate the management of the market by the private sector.

Project support included civil works and provided equipment's to improve market infrastructure, technical assistance to the PCU and the LIUs in the selected localities to prepare tenders for market management, building the skills of private sector and the communities to help in bid preparation and operating/managing markets, selection of the market operators (including study tours) to efficiently manage markets, and to locality staff to deliver inspection services. The non-governmental organizations (NGOs) were expected to mobilize livestock owner/trader groups and provide training on market price analysis, group marketing, and animal health requirements. The established livestock marketing groups would be provided with basic communication equipment to disseminate market prices and information.

As part of the rehabilitation process, the PIUs with support from LIUs in the targeted localities signed Memorandum of Understanding (MoU) with the locality authorities ensuring that the roles and responsibilities of key stakeholders is clearly highlighted, and that targeted localities would contribute by 20% of the rehabilitation cost. PCU also contributed to identify ways to encourage private operators to deliver services to users of the livestock markets.



The rehabilitation process included the establishment of Livestock Market Boards, composed by traders, producers and locality representatives. The project included support to build capacity through study tours, an activity that was not finally executed due to agenda problems. The markets were also equipped with computers and software to collect and report data for the Livestock Marketing Database (LMD). The LMD includes a regular reporting system, composed of monthly reports at LIUs level and aggregated at the PIU level which produce quarterly project reports.

#### 4.2.2 Characteristics of intermediators

All the intermediators in Sinjah Livestock Market (SLM) and Damazin Livestock Market (DLM) are males. Their age ranges between 41-50 years. Illiteracy was more dominant in DLM (66.7%) than in SS (35.1%) (Table 4.31).

**Table 4.31 Characteristics of intermediators**

<b>Parameter</b>		<b>SLM</b>		<b>DLM</b>	
<b>Gender</b>		<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
	<b>Male</b>	37	100.0	30	100.0
	<b>Female</b>	0	00.0	0	00.0
<b>Education Background</b>	<b>Illiterate</b>	13	35.1	20	66.7
	<b>Primary</b>	16	43.2	4	13.3
	<b>Intermediate</b>	5	13.5	2	6.7
	<b>Secondary</b>	3	8.1	3	10.0
	<b>University</b>	0	00.0	1	3.3
	<b>Total</b>	37	100.0	30	100.0
<b>Age Groups</b>	<b>20-30</b>	4	10.8	3	10.0
	<b>31-40</b>	8	21.6	8	26.7
	<b>41-50</b>	17	45.9	10	33.3
	<b>51-60</b>	6	16.2	8	26.7
	<b>&lt;60</b>	2	5.4	1	3.3
	<b>Total</b>	37	100.0	30	100.0

#### 4.2.3 Marketing Information

##### 4.2.3.1 Types of animal supplied to the markets

In DLM more than 35% of respondents deal with cattle as the main type animal, some (23.4%) deal with sheep, and 16.7% deal with cattle and sheep

together. In SLM 29.7 % deal with cattle, sheep & goat collectively and 29.7% of them deal sheep and goats without involving in cattle marketing (Table 4.32).

**Table 4.32 Types of animal supplied to the markets**

Animal type	SLM		DLM	
	Frequency	Percent	Frequency	Percent
<b>Cattle</b>	6	16.2	11	36.7
<b>Sheep</b>	7	18.9	7	23.4
<b>Goats</b>	0	00.0	1	3.3
<b>Cattle &amp; Sheep</b>	2	5.4	5	16.7
<b>Cattle &amp; Goats</b>	0	00.0	1	3.3
<b>Sheep &amp; Goats</b>	11	29.7	4	13.3
<b>Cattle, sheep &amp; Goats</b>	11	29.7	1	3.3
<b>Total</b>	37	100.0	30	100.0

#### **4.2.3.2 Financing livestock marketing**

Self- finance was the main source for the marketing operations, 96.7% and 89.2% of the respondents in DLM and SLM respectively depend entirely on themselves (table 4.33).

**Table 4.33 Source of Fund for financing the marketing operations in Damazin and Sinjah Livestock Markets**

Source of Fund	SLM		DLM	
	Frequency	Percent	Frequency	Percent
<b>Self-finance</b>	33	89.2	29	96.7
<b>Self-finance and Loans</b>	4	10.8	1	3.3
<b>Total</b>	37	100.0	30	100.0

#### **4.2.3.3 Orientation of the marketing activities**

Most of the marketing activities are directed towards the local market, 90.0% and 62.2% in DLM and SLM markets respectively, yet 37.8% and 10% of the marketing operations in SLM and DLM respectively, involved

livestock export among which about 15% were directed towards export only (Table 4.34).

**Table 4.34 The Orientation of the marketing operations in Damazin and Sinjha Livestock Markets**

	SLM		DLM	
	Frequency	Percent	Frequency	Percent
Export	4	10.8	1	3.3
Local Market	23	62.2	27	90.0
Local Market & Export	10	27.0	2	6.7
Total	37	100.0	30	100.0

#### **4.2.3.4 Duration of the Activity**

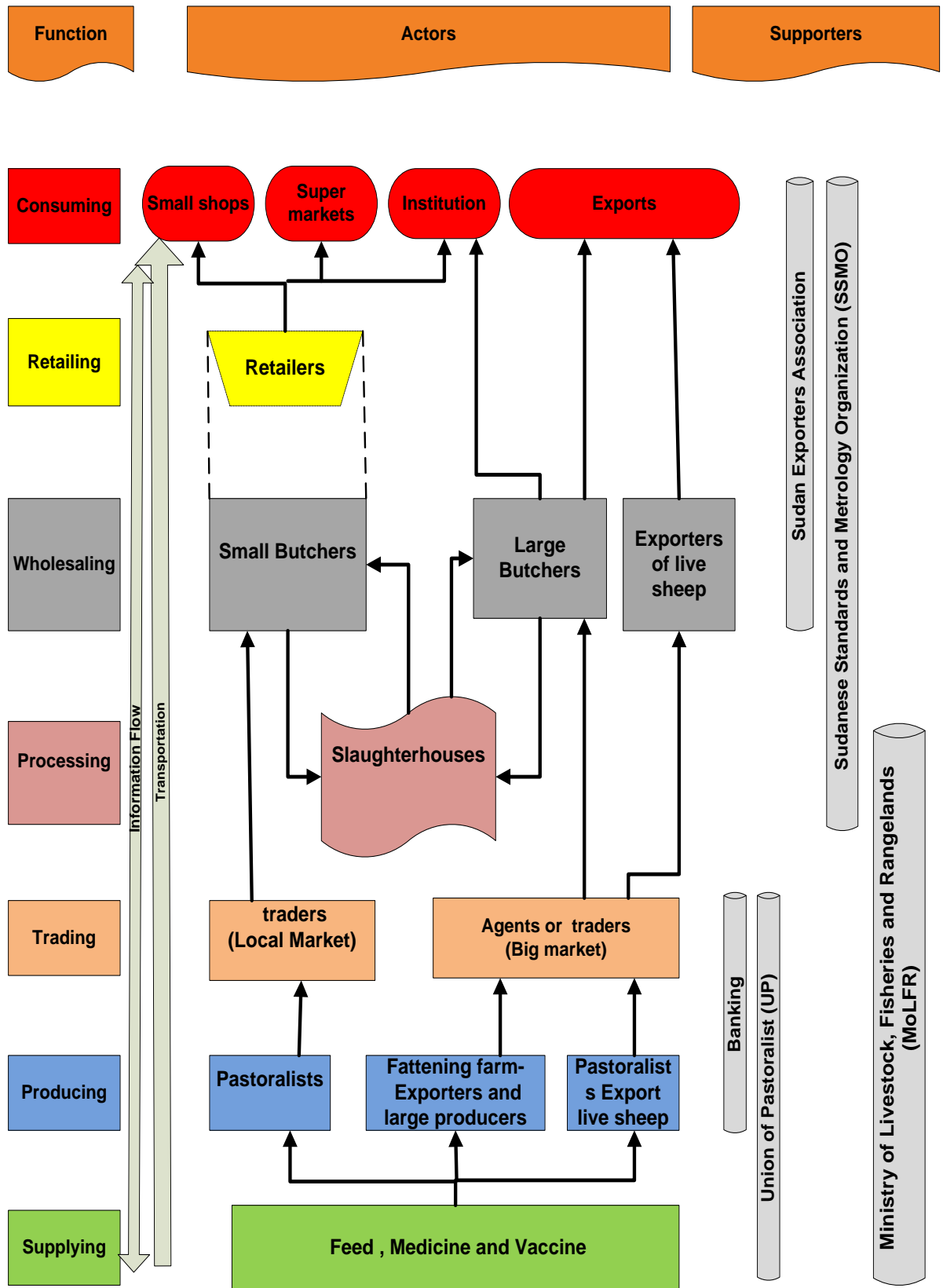
The survey result showed that 86.5% and 63.3% of respondents were operating in SLM and DLM respectively, before the inception of the project, while the rest started their activities during the implementation of the project (table 4.35).

**Table 4.35 Duration of involvement in marketing activities**

	SLM		DLM	
	Frequency	Percent	Frequency	Percent
Before the beginning of the Project	32	86.5	19	63.3
During the implementation period	5	23.5	11	36.7
Total	37	100.0	30	100.0

#### **4.2.4 Livestock marketing channels**

Figure 4.17 describes the marketing channels of the livestock in the two markets. The marketing channels start from the producers to village traders and/or to middlemen, other channels from producers to wholesalers directly. Also, middlemen can sell to village traders and/or to the wholesalers. From wholesalers to retailers and/or to consumers, or to the exporters, (figure 4.17).



**Figure 4.17 Marketing channel and Chain Map.**

Source: Researcher field survey 2014

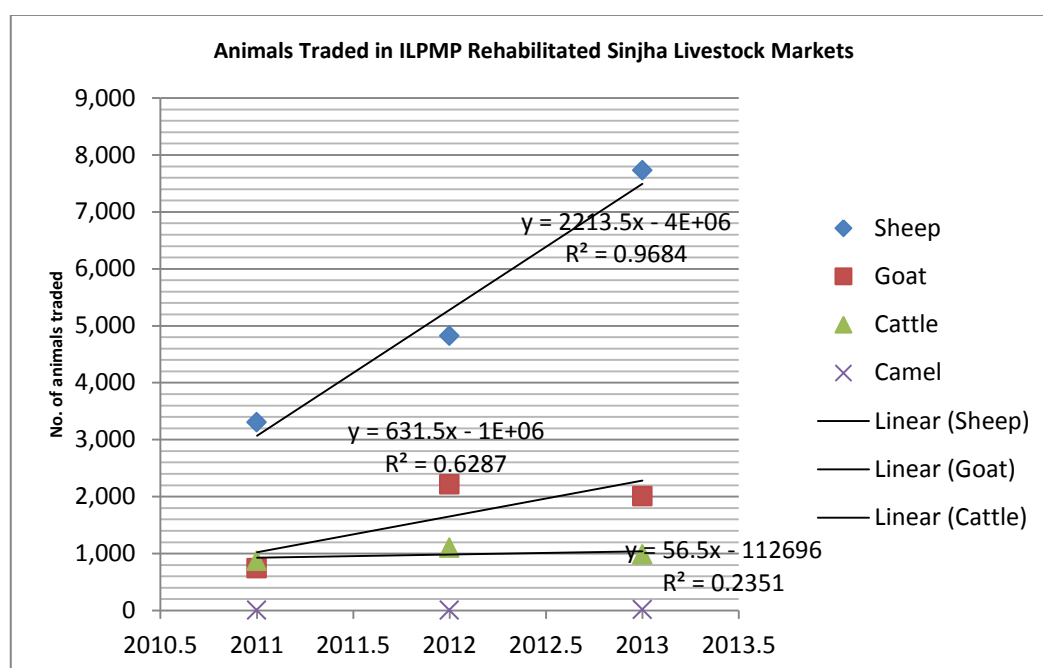
#### 4.2.5 The Impacts of the rehabilitation of Livestock markets

Tables 4.36 and 4.37 show the number of animals trade and the average prices of the animals in Sinjha livestock's market.

**Table 4.36 Animals traded in ILPMP rehabilitated Sinjha livestock markets**

Market	SPP.	2011	2012	2013
Sinjha	Sheep	3,300	4,821	7,727
	Goats	741	2,213	2,004
	Cattle	867	1,100	980
	Camels	4	5	13
	<b>Sub total</b>	<b>4,912</b>	<b>8,139</b>	<b>10,724</b>

Source: Adopted from WB Implementation Completion and Results Report, 2013.



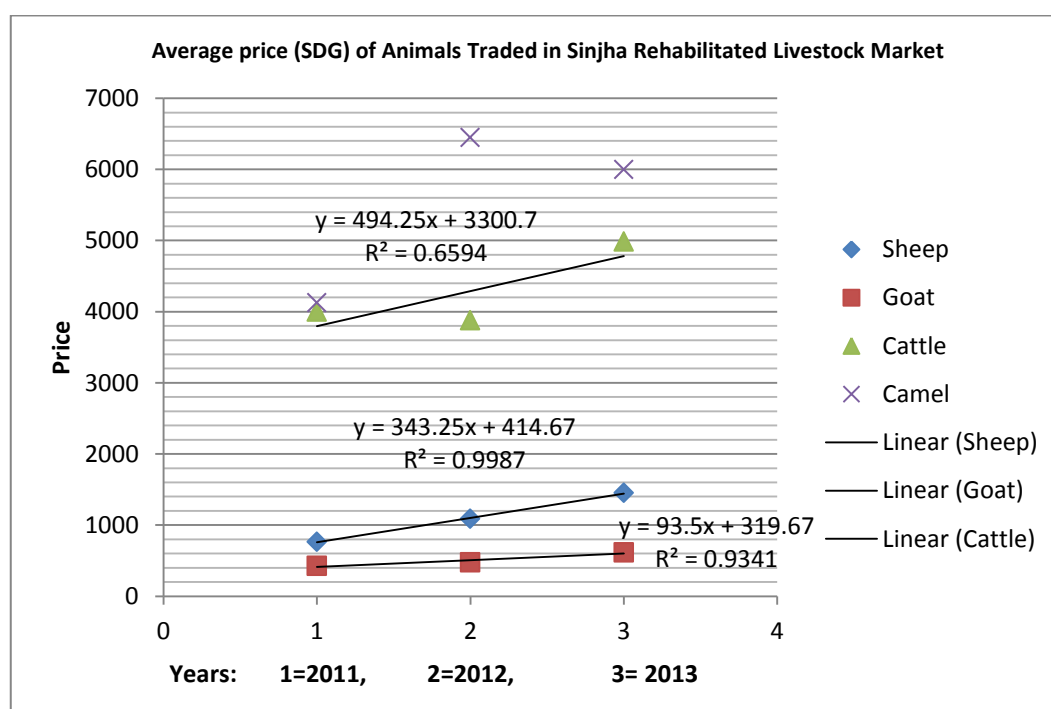
**Figure 4.18 Animals traded in Sinjha rehabilitated livestock market**

Figure 4.18 shows that there is a strong relationship between the type of animal and the number of the animals traded in Sinjah livestock market for the years 2011, 2012 and 2013. The analysis indicates that the number of sheep and camels traded was increased with time. While the number of goats and cattle traded was a raise in the year 2012 than 2013.

**Table 4.37 Average price (SDG) of animals traded in Sinjha rehabilitated livestock market**

Market	SPP.	2011	2012	2013
Sinjha	Sheep	765	1087	1451.5
	Goats	427.5	478	614.5
	Cattle	4000	3879	4988.5
	Camels	4125	6450	6000

Source: Adopted from WB Implementation Completion and Results Report, 2013



**Figure 4.19 Average price (SDG) of animals traded in Sinjha rehabilitated market**

Figure 4.19 shows that there is a strong relationship between the type of animals and the average prices of the animals in Sinjah livestock for the years 2011, 2012 and 2013, the analysis indicates that the average price of animals increased with time.

The unavailability of Damazin market data in ILPMP livestock market information system (Database) is the main reason that Damazin livestock market is not analyzed.

#### 4.2.6 Marketing Gross margin at each level of the marketing channel

##### 4.2.6.1 Marketing cost per head in SDG of Sex month live sheep from production areas to livestock Market in 2011 and 2015

Table 4.38 Marketing cost per head (SDG)

	items	Cost (SDG) 2011	Cost (SDG) 2015
1	Purchase price	420-475	575- 635
2	Transport to market fees	3	5
3	Market fees	0	0
4	Local pasture and water fees	2	3
5	Labour	1	1
6	Veterinary authorities staff for loading services	1	1
7	Guarantee Fees	4	5
<b>Total</b>		431-486	590- 650

Source: Livestock market survey 2015. \* Appendix (5) shows fees details that the producers paid in the marketing chain.

##### 4.2.6.2 Gross margin and value shares of actors in sheep value chain

Table 4.39 Gross margin and value shares of actors in sheep value chain (SDG) in 2011

1- Sennar State (SDG) 2011						
Chain actor	costs	Revenue( Selling Price)	Gross Income (Revenue– Costs)	Added value (Revenue – Previous actor’s revenue)	Gross margin (Gross income x 100/ Revenue)	Value share (Added value x 100/ end price)
<b>Producer</b>	170	500	330	500	66	71.4
<b>Middleman</b>	530	600	70	100	11.6	14.3
<b>Village Trader</b>	620	650	30	50	4.6	7.1
<b>Wholesaler (end price)</b>	670	700	30	50	4.3	7.1
<b>Total</b>				700		100.0
2- Blue Nile State (SDG) 2011						
<b>Producer</b>	150	431	281	431	65.2	62.5
<b>Middleman</b>	450	550	100	119	18.2	17.2
<b>Village Trader</b>	580	610	30	60	4.9	8.7
<b>Wholesaler (end price)</b>	630	690	60	80	8.7	11.6
<b>Total</b>				690		100.0

Source: Livestock Market Information System (Database) 2015.

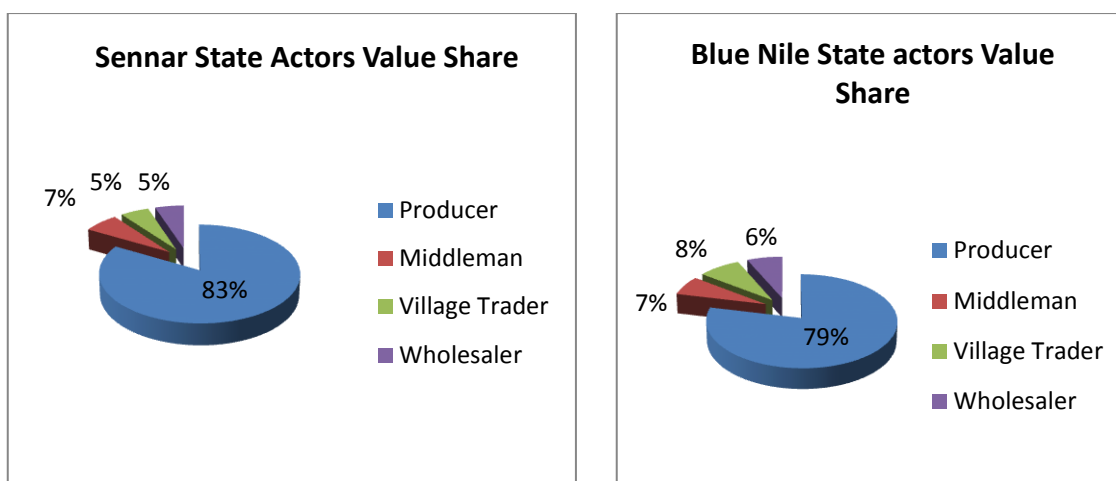
**Table 4.40 Gross margin and value shares of actors in sheep value chain (SDG) in 2015**

<b>1- Sennar State (SDG) 2015</b>						
<b>Chain actor</b>	costs	Revenue (Selling Price)	Gross Income (Revenue – Costs)	Added value (Revenue – Previous actor's revenue)	Gross margin % (Gross income x 100 / Revenue)	Value share % (Added value x 100 / end price)
<b>Producer</b>	200	650	450	650	69.2	83.3
<b>Middleman</b>	670	700	30	50	4.3	6.4
<b>Village Trader</b>	720	740	20	40	2.7	5.1
<b>Wholesaler (end price)</b>	760	780	20	40	2.7	5.1
<b>Total</b>				780		100.0
<b>2- Blue Nile State (SDG) 2015</b>						
<b>Producer</b>	190	590	400	590	67.8	78.7
<b>Middleman</b>	610	640	30	50	4.7	6.7
<b>Village Trader</b>	670	700	30	60	4.3	8.0
<b>Wholesaler (end price)</b>	720	750	30	50	4.0	6.6
<b>Total</b>				750		100.0

Source: Livestock Market Information System (Database) 2015.

Tables 4.39 and 4.40 presents the Gross margins and the value shares of actors in six month old sheep. In Sennar State, the producer has a gross margin of 69.2%, middleman gross margin of 4.3%, while the village trader and wholesaler have a gross margin of only 2.7% each. The producer earns 83.3% of the final price, and middleman earns 6.4%, while village trader and wholesaler earn only 5.1%. In Blue Nile State, the producer has a gross margin of 67.8%, middleman gross margin of 4.7%, while the village trader gross margin of 4.3% and wholesaler have a gross margin of only 4.0%. The producer earns 78.7% of the final price, and middleman earns 6.7%, while village trader earns 8.0% and wholesaler earns 6.6% (figure 4.20).





*Figure 4.20 Actors value share*

#### 4.2.7 The Socio-economic impacts of the markets rehabilitation project

Table 4.41 display the socio-economic and environmental impacts of the project on the different levels.

**Table 4.41 The Socio-economic and welfare of the communities impacts of the markets rehabilitation project**

Indicator	Baseline Value	Target Values	Actual Value Achieved at Target Years	Change	Impact Assessment of the Project	Source of Data
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>		<b>Change %</b>	<b>Economic Impacts</b>	
<b>Indicator 1</b>	<b>Animals traded in the rehabilitated livestock markets, by type of livestock (No.)</b>					
Value quantitative	Sheep 3,300 Goat 741 Cattle 867 Camel 13	Sheep 30,000 Goats 20,000 Cattle 10,000 Camels 4,000	Sheep 35,024 Goats 27,440 Cattle 11,769 Camels 8,844	59.2%	Increase the number of animals traded.	WB Report 2013
<b>Indicator 2</b>	<b>Gross Margin for different actors %</b>					
<b>Date achieved</b>	<b>2011</b>		<b>2015</b>			
Value quantitative	Producer 66 Middleman 11.6 Village Trader 4.6		Producer 69.2 Middleman 4.3 Village Trader 2.7	4.8 -62.9 -41.3	-Increase producer's gross margin. -Reduce	Interviews and Discussion

	Wholesaler 4.3		Wholesaler 2.7	-37.3	gross margin of the middle – men, village traders and wholesalers	
<b>Indicator 3</b>	<b>Increasing the size of the deal (No)</b>					
Value quantitative			25 of the beneficiaries mentioned their size of deal increased		Increase income	Field survey
<b>Indicator 4</b>	<b>Localities benefit</b>					
Value Qualitative)		70% of the market fees are allocated to the localities			Increase localities income	Interviews
<b>Indicator 5</b>	<b>External benefits of the markets</b>					
Value Qualitative		Real states prices around livestock markets areas soared up as a result of security brought around by the presence of the police and the availability of water			- Increase income - Water supplied	Interviews
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>			<b>Social Impacts</b>	
<b>Indicator 1</b>	<b>Social network and social relationship</b>					
Value Qualitative		Use of database and phones for communication create a social relation between stakeholders.			- Livestock market social network	Interviews
<b>Indicator 2</b>	<b>Job Creation</b>					
Value Qualitative		The project opening work opportunities to different people. e.g. food and beverages sellers, manufacturers of leather work, farming equipment and husbandry devices, animal traders, butchers, laborers and porters, blacksmiths and vendors, transporters and truckers and tea makers.			Job created	Interviews And researcher's observation
<b>Indicator 3</b>	<b>Training of markets animal health workers (number)</b>					
Value quantitative	0	8	8	100 %	Animal health,	Interviews

				human health care, training, awareness, skills and training	
<b>Date achieved</b>	<b>2009</b>	<b>2011-2014</b>	<b>change</b>	<b>Impacts of the project on the welfare of the communities</b>	
<b>Indicator 1</b>	<b>Security around the surrounding area</b>				
Value Qualitative		Several inhabitants in the neighborhood of the livestock markets mentioned that security improved, because of the police station.		- The security improved	Interviews
<b>Indicator 2</b>	<b>Improvement of public transport</b>				
Value Qualitative		Several inhabitants in the neighborhood of the livestock markets benefited from availability of public transport.		Public transport improved. Easy movement for the inhabitants.	Interviews

#### 4.2.8 The opinion of the intermediators

75.7% of the respondents in SLM described the rehabilitation of livestock markets as an excellent; while 60.0% of the respondents in DLM described it as fair as shown in table 4.42.

**Table 4.42 Beneficiaries opinions about the benefits gained from the rehabilitation of the markets**

	SLM		DLM	
	Frequency	%	Frequency	%
<b>Excellent</b>	28	75.7	3	10.0
<b>V. good</b>	8	21.6	3	10.0
<b>Good</b>	1	2.7	6	20.0
<b>Fair</b>	0	00.0	18	60.0
<b>Total</b>	37	100.0	30	100.0

Communication with Awatif, discussed and mention that the rehabilitation of livestock markets linked the producers with national and international marketing processes through data base center and markets boards, easy access of livestock trading process, availability of information and market services, increase livestock prices, organization of livestock market regulations, and provided business and trade opportunities for sundry traders and service providers by the hundreds e.g. food and beverages sellers, manufacturers of leather work, farming equipment and husbandry devices, animal traders, butchers, laborers and porters, blacksmiths and vendors, transporters and truckers ..etc.

Also, she mentioned that, at each livestock market a cafeteria was built to provide food and refreshments to market audience.

Interview with Ahmed (2015) pointed that, the introduction of information technology using the internet as fast communication method, enhanced sales



**PICTURE3. REHABILITATION OF LIVESTOCK MARKET**

transparency and the recording of transactions and make access to market information easier. The intended aim of the rehabilitated livestock markets is to increase animal trading and livestock export rates, but up to now the functionality of export transaction has not materialized, because of the absence of the associated facilities livestock export infrastructure such as inspection centers and quarantine.

The findings show that 73.3% and 54.1% of the respondents see the increase in size of market deal in DLM and SLM, respectively is due to the improved market design, (Table 4.43).

**Table 4.43 Benefits gained from improved market design**

	SLM		DLM	
	Freq.	%	Freq.	%
Increasing the size of the deal	20	54.1	22	73.3
Increasing income	1	2.7	5	16.7
Increasing income & Increasing the size of the deal	14	37.8	3	10.0
Increasing income, entry in the export market & increasing the size of the deal	2	5.4	0	00.0
Total	37	100.0	30	100.0

Sinjah livestock market manager interviewed explained that, markets sustainability remains as a concern and the PCU is required to follow up closely the completion of the pending works. There was incomplete works in the two rehabilitated markets. The negotiation between the localities and the other stakeholders is still ongoing on about completion of the markets rehabilitation. On the institutional side, the market board's consolidate on a greater engagement of the communities in the decision making, building their capacity stand out as priorities. Financially, the reallocation of the market fees to support the market activities (70 percent is allocated to the

localities for non-market-related purposes) was addressed by the other stakeholders. In the current situation the marketing systems remained as challenges, and should be considered to make these rehabilitated livestock markets more attractive to producers and for livestock markets sustainability.

### **4.3 Summary of the impacts of the project**

#### **4.3.1 Summary of impacts of the project at different levels**

Figure 4.21 below summarizes the impacts of the project at individual, household and communities levels.

##### **A) At the individual level**

By organization the beneficiaries in village development committees (VDCs) the project was able to develop the individual's skill in identifying, planning, implementing, and managing their subprojects. The VDCs and the identified group trained on primary animal health care/ animal husbandry, book keeping, managing bank account, marketing, and revolving fund, which help them to control their resources and give leverage to decision making.

##### **B) At the household level**

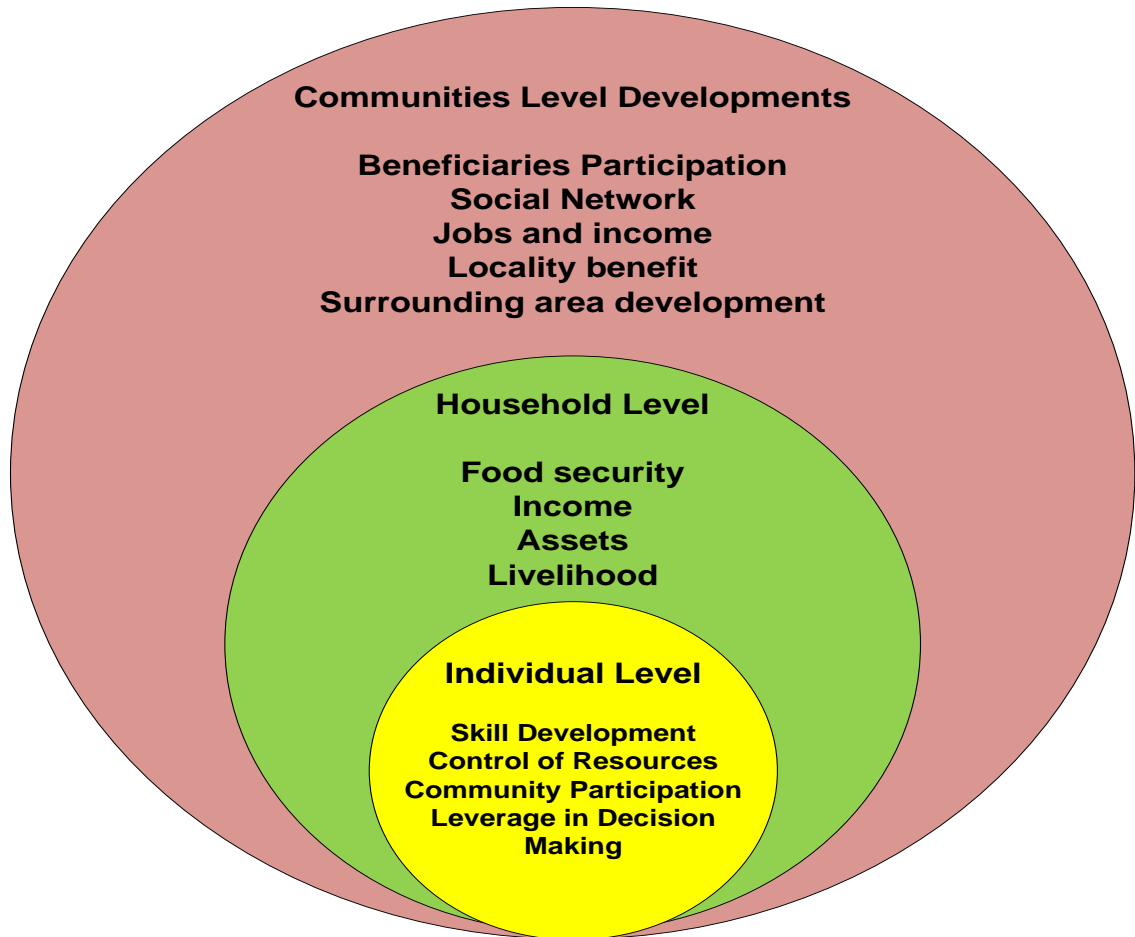
The project helped the households in increasing their incomes with resultant impact on the family livelihood in terms of assets, education, health, food security, improvement and rehabilitation of their houses and besides marriage.

##### **C) At the community level**

The project increased the supply of animals to the local markets thus securing food to the whole community. The VDCs acquired enough skills to plan and manage their sub-project activities and expand the activities to new beneficiaries thus sustain the project. The whole community benefited from the education and health services financed by the project revenue. Jobs creation acted to increase the income of community and lead to improve the

surrounding area and social life. The localities benefited the increase of its income from the rehabilitated of livestock markets.

### **Levels of Impact**



*Figure 4.21 Summary of the impact at individual, household and communities levels.*

### 4.3.2 Summary of Socio-Economic Impact Assessment (SIA)

Figure 4.22 show the summary of Socio-Economic Impact Assessment of the project.

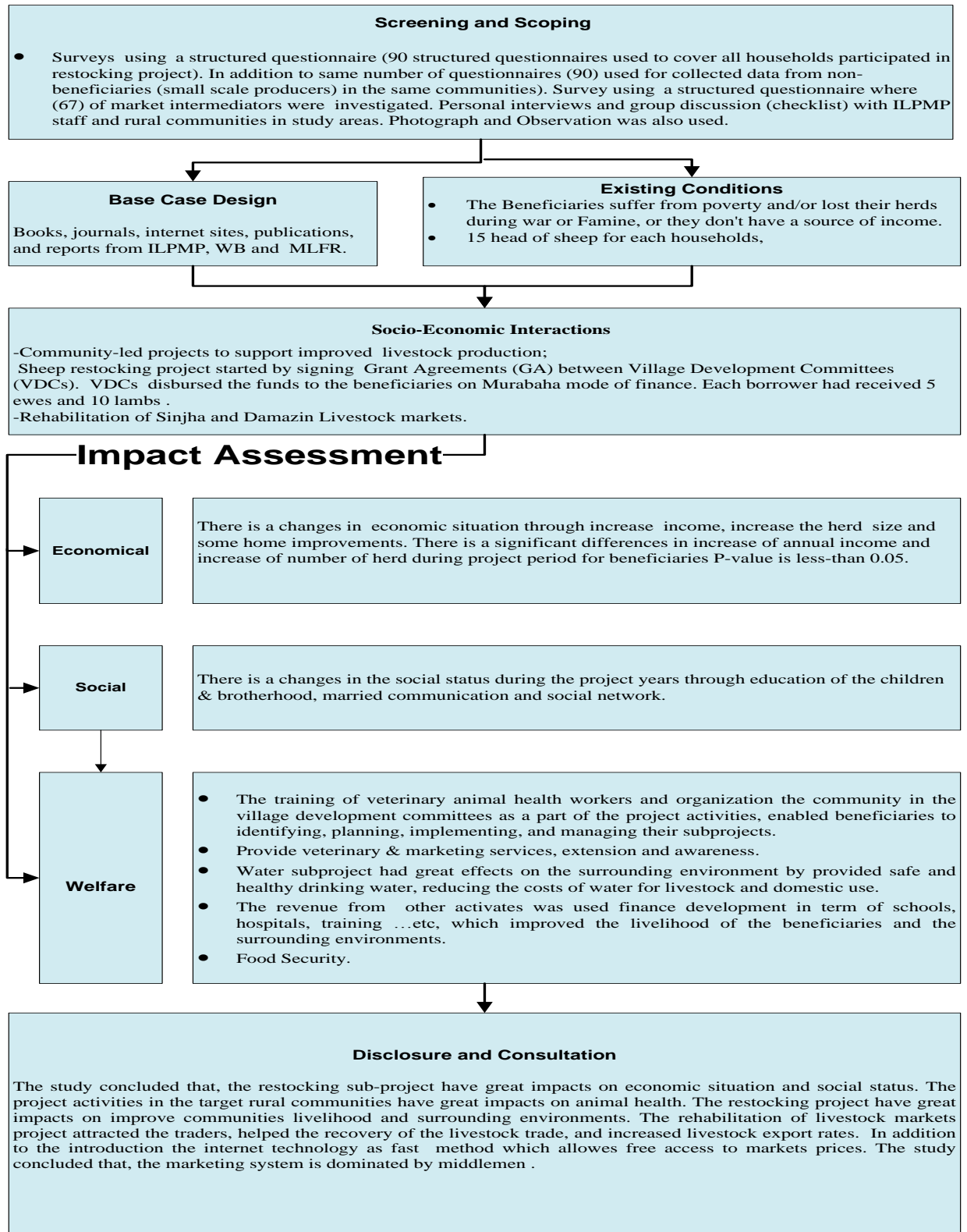


Figure 4.22 Summary of the Socio-Economic Impact Assessments



## **CHAPTER FIVE**

### **DISCUSSION**

Sudan government with the aid of the World Bank targeted the poorer communities in the study area. The selection of the individuals and the type of activity (restocking of small ruminants) were basically dependent on participatory approach where those who lost their livestock and the poorer household who did not have a source of income and have no access to financial institutions were supported by the project. This was proved by the differences between the beneficiaries and non-beneficiaries with respect to their characteristic, source of fund, type animals, duration of ownership and type of activity practiced. Most of both beneficiaries and non-beneficiaries share common characteristics of being illiterate, youth and involved directly or indirectly in agricultural activities (crop farmers, pastoralists). This supports the study of WB (2008) which pointed out that billions of poor people in developing countries depend directly or indirectly on livestock for their livelihood. This fact also justifies the selection of livestock as a tool for achieving development goals in the study area. Moreover, small ruminants in particular are used because they don't need high cost, and they are easily to handle. This selection comes in agreement with (Lebbie, 2004) who explained that "Sheep and goats play a significant role in the food chain and overall livelihoods of rural households", and study of (Sani, Gray and Baker, 2004) which proved that "small livestock in high demand and can thrive on low inputs and local resources" and Ozung *et al* (2011) pointed to that sheep and goats have served as a means of ready cash and a reserve against economic and agricultural hardship. This justifies the practice fattening sheep & goats as a production activities by some non-beneficiaries.

In the present study the respondents were mainly youths, who are illiterate due to the lack of schools in such remote villages or who left schools due to poverty. The situation demonstrates unbalanced growth, uneven development

and urban–rural inequality and justifies the adoption of the program under consideration. The case is similar to Nepal Community Livestock Development Project which aimed to reduce the incidence of poverty in rural communities in the project area. This result supported the studies of WB (2008), saying that "the majority of the world's estimated 1.3 billion poor people live in developing countries where they depend directly or indirectly on livestock for their livelihoods".

The participatory approach adopted and the involvement of the community through the village development committees (VDCs) in the planning and execution of the project acted to ensure the common goal of sustainable development. The village development committees (VDCs) used the animals paid back by the beneficiaries to support new ones, thus the original fund was recycled multiple times and more households benefited from this. The income generated from operating the water point was used by (VDCs) in establishing and rehabilitating social infrastructures like schools, health centers provision of healthy water, electricity which all ensure community welfare and development. This fact comes in agreement with Srinivas (2014) who focused on a broad range of development goals e.g education, entrepreneurship, physical infrastructure, and social infrastructure as important players in developing rural regions. The hypothesis set by the research in that rural development project of improving livestock production and marketing assisted in improving the welfare of the community was satisfied.

Strengthening the skills of the beneficiaries and the community at large by the training and raising their awareness to the importance of animal health in the production process resulted in improved animal health and consequently animal production. This comes in agreement with (Madden, 2011) who explained that "Small ruminant producers must know what is normal in order to recognize abnormal changes in animals to be able to determine and address animal health care effectively".

The orientation of the production activities either to food security or income generation satisfied the goal of the ILPMP project which intervened through livestock production as a tool to help the poor smallholder in rural areas in reducing poverty and contributing to food security. The impacts of the project were clearly obvious through the increase of incomes, and herd's size, houses rehabilitation and improvements and owning real states during the project years. This support (ILRI, 2011) study regarding the use of sheep, and goats as a tool for escaping poverty and malnutrition and satisfies the objectives of the project. The finding of the current study typically agrees with Moseley (2003) who explained that "rural development generally refers to the process of improving the quality of life and economic well-being of people in rural areas based on locally produced economic development strategies".

Socially the positive impact of the project in changing the social status of the beneficiaries through education of the children & brotherhood, marriage and social posts agrees with Chigbu (2012) who explained that rural development actions are mainly to achieve the social and economic development of the rural areas also Sani, Gray and Baker, (2004) defined rural development as "seeking to sustain vibrant rural communities with a balanced structure of age, income and occupational groups, capable of adapting to on-going economic, social and cultural change, enjoying a high stand and of living and an attractive quality of life and with sufficient income and employment opportunities to allow individuals and families to live with dignity". Srinivas (2014) indicated that "Education, entrepreneurship, physical infrastructure, and social infrastructure all play an important role in developing rural regions "This corresponds to the research findings and to the research hypotheses.

The opinion of the beneficiaries about the impact of the project indicates that they are generally satisfied with the results they obtained by participating in

the restocking project. This agrees with (Diakosavvas, 2006) who mentioned that rural development is important to farmers and that the cultural factors and an entrepreneurial spirit play an important role in realizing the potential of the agricultural sector in rural areas.

The impact of the project on animal health and productivity indicates that extension work has positive results. The training of veterinary animal health workers and organization of the community in the village development committees as a part of the project activities, enabled beneficiaries to identifying, planning, implementing, and managing their subprojects.

The impact of the project on the surrounding environment brought by the water subproject had great effects by availing healthy drinking water, reducing the costs of water for livestock and domestic use. The revenue from these other activities was used to finance development in term of schools, hospitals, training ...etc, improved the livelihood of the beneficiaries and the surrounding environments. These results are similar to the case of Madagascar Livestock and Rural Development Project which aimed to improve the incomes of poor animals owners and to encourage policy changes in the livestock sector, where the animal-health protection, roads and water supply was improved (IFAD, 2014). Nepal Community Livestock Development Project intended to reduce the incidence of poverty in rural communities and to improve the levels of food security, through support for goat raising and microfinance services is another case similar to the current project.

The outcomes of the project under consideration are similar to those of Philippines Smallholder Livestock Development Project which aimed to increase improving the income of the beneficiaries and diversifying on-farm employment opportunities (IFAD, 2014). Also Ethiopia Fourth Livestock

Development Project focused on improving the livelihoods and food security of small-scale agro-pastoralists (IFAD, 2014).

The rehabilitation of the markets in the study area acted to stimulate the forward and backward linkages and increases the supply of livestock to both SLM and DLM. The increase in the price of livestock may be attributed to the general level of inflation. SLM was more rehabilitated than DLM so the traders in Sinjah are more satisfied than those in Damazin. In both livestock markets the traders benefited from the rehabilitation of livestock markets through increasing the size of the deal and increase their income, but the percentage of export of livestock was very low because of the absence of livestock export infrastructure.

The existence of livestock markets designed in accordance to international standards attracted the traders and helps the recovery of the livestock trade. Although the main intended result of the rehabilitation of livestock markets was to increase the livestock export rates and increase animal trading, yet this goal was not fully achieved because the rehabilitation process was not fully accomplished. Cattle and sheep are the main animal type present in Damazin and Sinjah livestock markets, while goats are only present in DLM. The only explanation for the presence goats in Damazin is that the people in Blue Nile State are much poorer than that in Sennar State so they tend to keep goats (Goat is the cow of the poor man).

In both livestock markets most of the traders depend on self-finance indicating that there was less access to financial institutions. In SLM the marketing activities are oriented towards export more than in DLM because Sinjah is much near the export ports and the market farcicalities in Sinjah are better than that in DLM.

Livestock marketing in the two markets is completely dominated by illiterate men above forty, although women in both markets are found to practice different types of trade, yet they are not involved in livestock marketing. This

may be attributed to the fact that in rural communities trading in livestock is considered as a man job. Illiteracy among livestock dealers reflects the denial of the surveyed rural areas from education services where access to educational facilities is not easy. Livestock dealer could have more interaction with the international market and hence compete effectively in export market if they were well educated. Youth were not involved in such business; they don't have enough capital to start such type of business which needs a relatively high capital and don't have accesses to loans.

Most traders (intermediators) in the livestock markets started before the inception of the project, yet a considerable number of them are involved in livestock marketing after the inception of the project. The project seems to attract intermediators in Damazin more than those in Sinjah. The marketing channels in the two markets resemble that described by (Aklilu 2002). In SLM most of the respondents included in the survey were satisfied by the rehabilitation introduced to the livestock markets, while in DLM they were not so satisfied. The DLM was not fully rehabilitated.

The gross margin of producers continued to increase throughout the project life. Gross margin and the value share are high in comparison to the other actors in the value chain indicated that producers who shoulder the higher costs and risks gain the higher return. The matter that satisfied the project objectives and supported KIT and IIRR (2008) who explained that "In an ideal market situation, with perfect competition and transparent information, the size of the gross margin reflects the amount of labor, expenses and risks that an actor has put into the product". The higher the labor, expenses and risks, the higher the gross margin a fair principle.

The rehabilitation of the two markets developed the surrounding area, where several businesses were created around the markets. The inhabitants in the neighborhood benefited from the rehabilitation of the two markets and the result was provision and creation of job opportunities. Communication

among all producers, traders and exporters and information flow and exchange of ideas supported by (AMA, 2013) which pointed that “marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large”.

## **CHAPTER SIX**

### **CONCLUSIONS AND RECOMMENDATION**

#### **6.1 Conclusions**

This study concluded that, most of the beneficiaries are non- educated young men, 30% of women participated in the restocking project. All beneficiaries shared in the capital of the production, and got the rest of the funding from the project on Murabaha mode of finance. Where the restocking project targeted small households which were mainly pastoralist or crop farmer, they received sheep and/or goats for breeding and fattening purposes to supply local and export markets.

The study concluded that, the restocking sub-projects have great impacts on economic situation and social status of beneficiaries which helped them to increase their incomes and herd size in order to improve their livelihood, provide jobs and secure their food, thus achieving the goal of ILPMP which focused on reducing poverty and contributing to food security.

The project activities in the target rural communities have great impacts on animal health through training of (43) veterinary animal health workers which helped on decreasing the epidemic, zoonotic and contagious diseases through vaccination and extension messages that increased animal production.

The restocking project have great impacts on improving communities livelihood and surrounding environments through other project activities like water sub-project (water yard) which provided the areas by safe drinking water, and reduced costs of water for livestock and household use, also improving of schools (education), hospitals (health) from the revenue earning from the project other activities.

The rehabilitation of livestock markets project attracted the traders, helped the recovery of the livestock trade, and increased livestock export rates. In



addition to introduction of the internet technology as fast and efficient method which allows free access to market price information through livestock market database. Also the rehabilitation of livestock markets organized livestock markets regulations, helped in the development of the surrounded area and accordingly the public transport also improved.

The study concluded that, the marketing system is dominated by middlemen and the livestock value chain affected by the livestock market intermediators. This affects the marketing channels and led to increase in the livestock prices.

These programs launched by the Ministry of Livestock, Fisheries and Rangelands are commendable and worthwhile for the economic development.

## **6.2 Recommendations**

- 1- There is need for extending rural development programs to involve more rural and poorest communities in the country.
- 2- More field training and rising of awareness to improve the skills of the rural communities in the target area especially on animal production, animal health and marketing system. This will help in achieving rural development objectives.
- 3- There is need to link the training program to the opened credit opportunities for poor-resources households.
- 4- MoLFR should consider the challenges in the marketing system specifically in market management to make these rehabilitated markets more attractive to producers.
- 5- Livestock markets management and market's board should work to decrease the number of intermediators involved in livestock marketing for the benefit of the primary producers.

- 6- Encouragement of youth and women to enter livestock market trade business and facilitating the access to loans for livestock dealers.
- 7- MoLFR together with the States and localities stakeholders should act to put in place livestock export infrastructure.
- 8- The program should be based on participatory approaches where the beneficiaries should participate in the project cycle.

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## APPENDIXES

### Appendix (1)

استبانة صغار المنتجين المسفيدين من المشروع

أولاً : بيانات الحائز

1- موقع الحيازة

1-الولاية 1-سنار

2-المحلية

2 -النيل الازرق

ابو حجار	- الدمازين		

2- اسم الحائز .....

3- النوع

1- ذكر

2- انثى

4- العمر

60 < -6	60 -51 -5	50-41 -4	40 -31 -3	30-20 -1	20 > -1

5- المستوى التعليمي

1-أمية	2-اساس	3-ثانوى عام	4-ثانوى عالى	5-جامعى	6-فوق الجامعى

6- المهنة الاساسية

1-ربة منزل	2-مزارع	3-راعى	4-تاجر (منتج)

## ثانياً: معلومات عن الحياة

1. نوع الملكية

2- شراكة

1- فردية

2. مصدر التمويل

3- ذاتي+قرض

2- قروض

1- ذاتي

3. نوع النشاط

1-تسمين عجول	2-تسمين ضأن	3-تربية ماعز وضان	4-تربية أبقار	5-تربية ابل	6-انتاج دواجن	7-تصدير ماشية

4. نظام التربية

1-مترحل	2-شبة متنقل	3-مستقر

5. مدة مزاولة النشاط

1- > سنة	2- سنة- 5 سنوات	3-6- 10 سنوات	4-11- 15 سنة	5- سنة	6-20- أكثر

6. نوع القطيع

1-أبقار	2-ضأن	3- ماعز	4-ابل	5-ابقار وضأن	6-ابقار وماعز	7-ضأن وماعز	8-أبقار، ضأن وماعز

7. حجم القطيع

100<-6	100 >-5	50>-4	20>-3	10 >-2	5 >-1

8. مصادر المياه

4-اخرى	2- انهار،خيران	2-ابار	1- حفائر

9. مصادر غذاء الحيوان

4-اخرى	4- مراكز اعلاف	2- مخلفات محاصيل	3- مرى طبيعى

10. الرعاية البيطرية

4-لا يوجد	3-عند ظهور حالات	2-اشراف دورى	1-اشراف بيطرى دائم

11. الخدمات الاخرى

5-كهرباء	3-مياه	2-دورات تدريبية	1-ارشاد وتوعية

12. ما هو الغرض من الانتاج (تربية الماشية):

للصادر	السوق المحلي	الاستهلاك المنزلي

## ثالثاً: أثر المشروع

1. ما مدى الاستفادة من المشروع؟

1-ممتازة	2-جيدة جداً	3-جيدة	4-حسنة	5-لابأس بها

2. كيف تمت معرفتكم بالمشروع؟

1-اجهزة الاعلام	2-مناديب المشروع	3-المنتجين

3. متي بدأت التعامل مع المشروع؟

1- عام (بداية المشروع)	2-بعد عام	3-بعد عامين	4-بعد ثلاثة اعوام

4. هل انت مشارك في راس المال؟

1-نعم  2- لا

5. ما نسبة المشاركة في رأس المال؟

1- 5%	2-10%	3-15%	4-20%

6. من اين حصلت علي باقي التمويل؟

1-المشروع	2-البنك	3-شراكات

7. هل ترتبت علي ممارستك هذا النوع من النشاط تغيير في وضعك الاقتصادي في خلال الخمس

سنوات الاخيرة؟

1- تغير كبير جداً	2-تغيير كبير	3-تغيير الى حد ما	4-لم يحدث تغيير	5-تغيير سلبي



8. كيف كان هذا التغيير

1/امتلك ت قطعة ارض زراعية	2/اشترت ارض سكنية	3- بناء وتأثيث المنزل	4-اجراء بعض التحسينات ت في المنزل	5- امتلكت عربة	6- امتلكت اي عقار آخر	7- زيادة دخلك	8.زيادة عدد القطيع

9. كم تبلغ مساحة الارض الزراعية التي تمتلكها

1- > من فدان	2- 5-1 فدان	3- 10-6 فدان	4- 15-11 فدان	5- 20-16 فدان	6- <20 فدان

10- كم تبلغ قيمة الارض التي اشتريتها

1- > 5 الف جنيه	2- 10- 5 الف جنيه	3- 20-11 الف جنيه	4- 50-21 الف جنيه	5- 100-51 الف جنيه	6- <100 الف جنيه

11- كم بلغ قيمة بناء وتأثيث المنزل

1- > 5 الف جنيه	2- 10- 5 الف جنيه	3- 20-11 الف جنيه	4- 50-21 الف جنيه	5- 100-51 الف جنيه	6- <100 الف جنيه

12- كم بلغت قيمة اجراء بعض التحسينات في المنزل

1- > 5 الف جنيه	2- 10- 5 الف جنيه	3- 20-11 الف جنيه	4- 50-21 الف جنيه	5- 100-51 الف جنيه	6- <100 الف جنيه

13- كم بلغت قيمة العربة التي تمتلكها

-6 <100 الف جنيه	-51-5 100 الف جنيه	4-21-50 الف جنيه	3-11-20 الف جنيه	- 5-2 10 الف جنيه	> -1 5 الف جنيه

14- كم بلغت قيمة العقار الذي تمتلكه

-6 <100 الف جنيه	-51-5 100 الف جنيه	-21-4 50 الف جنيه	20-11-3 الف جنيه	10-5-2 الف جنيه	> -1 5 الف جنيه

15. كم بلغت الزيادة في الدخل السنوي

السنة الخامسة 2011	السنة الرابعة 2010	السنة الثالثة 2009	السنة الثانية 2008	السنة الاولى 2007	قبل بداية المشروع 2006

16- كم بلغت الزيادة في تدرج عدد القطيع

السنة الخامسة 2011	السنة الرابعة 2010	السنة الثالثة 2009	السنة الثانية 2008	السنة الاولى 2007	قبل بداية المشروع 2006

17- هل ترتبت علي ممارستك هذا النوع من النشاط تغيير في وضعك الاجتماعي ؟

5-تغيير سلبي	4-لم يحدث تغيير	3- تغيير الى حد ما	2- تغيير كبير	1- تغيير كبير جداً

18- كيف تغير وضعك الاجتماعي؟

1 - تعليم الابناء	2- مدارس خاصة	3- تزوجت مرة ثانية	4-

19. ما هي الاثار التي ترتبت علي ممارستك هذا النوع من النشاط تغيير في وضعك السياسي؟

1- تغيير كبير جداً	2- تغيير كبير	3- تغيير الى حد ما	4- لم يحدث تغيير	5- تغيير سلبي

20. كيف تغير وضعك السياسي؟

1 - رئيس مجموعة	2- عضو في اللجنة الشعبية	3- عمدة او شيخ قبيلة	4- عضو في المجلس الوطني

أى تعليق آخر تود اضافته:

.....

.....

.....

.....

أسم وعنوان جامع البيانات

.....

.....

.....

## Appendix (2)

### استبانة صغار المنتجين الغير مستفيدين من المشروع

#### أولاً : بيانات الحائز

1. موقع الحيازة

1-الولاية 1- سنار  2 -النيل الازرق

2. -المحلية

		2.الدمازين	1. ابو حجار

3. اسم الحائز .....

4. النوع 1- ذكر  2- انثى

5. العمر

60 < -6	60 - 51-5	50-41-4	-31 -3 40	30-20 -2	20 > -1

6. المستوى التعليمي

6-فوق الجامعي	5- جامعي	4-ثانوى عالي	3- ثانوى عام	2-اساس	1-أمى

7. المهنة الاساسية

4-تاجر (منتج)	3-راعى	2-مزارع	1-ربة منزل

ثانياً: معلومات عن الحياة

1. نوع الملكية

1- فردية	<input type="checkbox"/>	2- شراكة	<input type="checkbox"/>
----------	--------------------------	----------	--------------------------

2. ما نسبة المشاركة في رأس المال؟

1- 5%	2- 10%	3- 15%	4- 20%
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. مصدر التمويل

1- ذاتي	<input type="checkbox"/>	2- قروض	<input type="checkbox"/>	3- ذاتي+قرض	<input type="checkbox"/>
---------	--------------------------	---------	--------------------------	-------------	--------------------------

4. من اين حصلت علي القرض؟

1- افراد	<input type="checkbox"/>	2- البنك	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. نوع النشاط

1- تسمين عجول	2- تسمين ضأن	3- تربية ماعروضان	4- تربية أبقار	5- تربية ابل	6- انتاج دواجن	7- تصدير ماشية
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. نظام التربية

1- مترحل	<input type="checkbox"/>	2- شبة منتقل	<input type="checkbox"/>	3- مستقر	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. مدة مزاولة النشاط

1- > سنة	2- > 5 سنوات	3- > 10 سنوات	4- > 15 سنة	5- > 20 سنة	6- 20 فأكثر
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. نوع القطيع

1-أبقار	2-ضأن	3-ماعز	4-ابل	5-ابقار	6-ابقار	7-ضأن	8-أبقار، ضأن وماعز

9- حجم القطيع

1 > 5	2 > 10	3 > 20	4 > 50	5 > 100	6 < 100

10. مصادر المياه

1-حفائر	2-ابار	3-انهار،خيران	4-اخرى

11- مصادر غذاء الحيوان

1-مرعى طبيعى	2-مخلفات محاصيل	3-مركزات اعلاف	4-اخرى

12- الرعاية البيطرية

1-اشراف بيطرى دائم	2-اشراف دورى	3-عند ظهور حالات	4-لا يوجد

13- الخدمات الاخرى

1-ارشاد وتوعية	2-دورات تدريبية	3-مياه	4-كهرباء

### ثالثاً: أثر المشروع

1. ما سبب عدم مشاركتكم بالمشروع؟

1-لم نعلم بالمشروع	2-لا نرغب في التعامل مع المشروع

2. هل ترتبت علي ممارستك هذا النوع من النشاط تغيير في وضعك الاقتصادي في خلال الخمس سنوات الاخيرة؟

1-تغيير كبير جداً	2-تغيير كبير	3-تغيير الى حد ما	4-لم يحدث تغيير	5-تغيير سلبي

3. كيف كان هذا التغيير

1-امتلكت قطعة ارض زراعية	2- اشتريت ارض سكنية	3- بناء وتأثيث المنزل	4-اجراء بعض التحسينات في المنزل	5- امتلكت عربة	6-امتلكت اي عقار آخر	7-زيادة دخلك	8-زيادة عدد القطيع

4. كم تبلغ مساحة الارض الزراعية التي تمتلكها

1- > من فدان	2- 1-5 فدان	3- 6-10 فدان	4- 11-15 فدان	5- 16-20 فدان	6- < 20 فدان

5- كم تبلغ قيمة الارض التي اشتريتها

100<-6	-51-5	50-21-4	20-11-3	10-5-2	5>-1
الف جنيه	100 الف جنيه	الف جنيه	الف جنيه	الف جنيه	الف جنيه

6- كم بلغ قيمة بناء وتأثيث المنزل

100<-6	-51-5	-21-4	20-11-3	-5-2	>-1
الف جنيه	100 الف جنيه	50 الف جنيه	الف جنيه	10 الف جنيه	5 الف جنيه

7- كم بلغت قيمة اجراء بعض التحسينات في المنزل

-6	-51-5	-21-4	20-11-3	10-5-2	5>-1
<100 الف جنيه	100 الف جنيه	50 الف جنيه	الف جنيه	الف جنيه	الف جنيه

8- كم بلغت قيمة العربة التي تمتلكها

-6	-51-5	-21-4	20-11-3	-5-2	5>-1
<100 الف جنيه	100 الف جنيه	50 الف جنيه	الف جنيه	10 الف جنيه	الف جنيه



9- كم بلغت قيمة العقار الذي تمتلكه

5 > 1 الف جنيه	2-5-10 الف جنيه	3-11-20 الف جنيه	4-21-50 الف جنيه	5-51- 100 الف جنيه	6- <100 الف جنيه

10- كم بلغت الزيادة في الدخل السنوي

قبل بداية المشروع 2006	السنة الاولى 2007	السنة الثانية 2008	السنة الثالثة 2009	السنة الرابعة 2010	السنة الخامسة 2011

11- كم بلغت الزيادة في تدرج عدد القطيع

قبل بداية المشروع 2006	السنة الاولى 2007	السنة الثانية 2008	السنة الثالثة 2009	السنة الرابعة 2010	السنة الخامسة 2011

12- هل ترتبت علي ممارستك هذا النوع من النشاط تغيير في وضعك الاجتماعي؟

1-تغيير كبير جداً	2- تغيير كبير	3- تغيير الى حد ما	4- لم يحدث تغيير	5-تغيير سلبى

13- كيف تغيير وضعك الاجتماعي؟

1- تعليم الابناء	2- مدارس خاصة	3- تزوجت مرة ثانية	4-



### Appendix (3)

استبانة وسطاء السوق

#### Market Data بيانات السوق

##### 1- موقع السوق: Market Location

- الولاية: State

1- سنار Sennar 2- النيل الازرق Blue Nile

- المحلية: Locality

1- سنجه (Sinjha) 2- الدمازين Damazin

##### 2- نوع السوق: Market Type

1- ابتدائي Primary 2- ثانوي Secondary 3- نهائي Final

#### Mediators Information ثانياً : بيانات الوسيط :

1. اسم الوسيط : Name : .....

2. النوع: Sex 1- ذكر Male 2- انثى Female

3. العمر: Age

60 < -6	60 -51 -5	50-41 -4	40 -31 -3	30-20 -3	20 >-1

#### 4. المستوى التعليمي Education Level

6-فوق الجامعي Post graduate	5-جامعي University	4-ثانوي عالي Higher-Secondary	3-ثانوي عام Secondary	2-اساس Primary	1-أمية Illiterate
--------------------------------	-----------------------	----------------------------------	--------------------------	-------------------	----------------------

5. المهنة الاساسية: Main occupation

1- مصدر	2- تاجر	3- مربى
Exporter	Trader	Producer

ثالثاً: معلومات عن التسويق Marketing Information

1- نوع الحيوان: Animal type

1-أبقار	2-ضأن	3- ماعز	4-ابل	5-ابقار	6-ابقار	7-ضأن	8-أبقار،
Cattle	Sheep	Goat	Camel	Cattle & sheep	Cattle & Goat	Sheep & Goat	Cattle, sheep & Goat

2. مصدر التمويل : Source of Funding

ذاتى Self      قروض Loans      ذاتى+قرض Self + Loans

3. توجه النشاط: Oriented activity

1- للصادر Export	2- السوق المحلى
	Local Market

4. مدة مزاولة النشاط: Duration of Activity

قبل بداية المشروع 2006	السنة الاولى 2007	السنة الثانية 2008	السنة الثالثة 2009	السنة الرابعة 2010	السنة الخامسة 2011
Before the Beginning of the Project	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year

5. حجم القطيع: Herd size

500 < /7	-401/6 500	-301/5 400	-201 /4 300	-101 /3 200	-51 /2 100	50 > /1

6. ممن تشتري الحيوانات: From whom you buy the animals

3- تاجر الجملة Wholesaler	2- التاجر المحلي Local trader	1- المنتج Producer
------------------------------	----------------------------------	-----------------------

7. لمن تبيع الحيوانات: For whom you sell animals

3-المصدر Exporter	2-تاجر الجملة Wholesaler	1-التاجر المحلي Local trader
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8. الخدمات التي تتلقاها: Services you receive

2-دورات تدريبية Training	1-ارشاد وتوعية Extension and awareness
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9. الخدمات التي تقدمها للحيوانات: The services you provided to the animals

5- تطعيم Vaccination	4- تسمين Fattening	3- مأوى Shelter	2- ترحيل Transport	1- تغذية Feed
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10. الرعاية البيطرية : Veterinary care

4-لا يوجد	3-عند ظهور حالات	2-اشراف دورى	1-اشراف بيطرى دائم
None	At-emergence of cases	Regular supervision	Permanent supervision

11. كيف تتم العملية التسويقية: How is the marketing process

2- عبر الوسطاء	1-من المنتج الي التاجر مباشرة
Through Mediators	From Producer to trader

12. قنوات التسويق: Marketing Channels

5-من المنتج الي تجار القرية	4-من النتج الي المصدريين	3-من المنتج الي تجار التجزئية	2.من المنتج الي الوسيط	1-من المنتج الي تجار الجملة
From Producer to village traders	From Producer to Exporters	From Producer to Retailers	From producer to middleman	From Producer to wholesalers

رابعاً: أثر المشروع: The Impact of the Project

1- ما مدى الاستفادة من تأهيل أسواق الصادر؟

How are the benefited from the rehabilitation of the markets?

5- لا بأس	4- حسنة	3- جيدة	2- جيدة جداً	1- ممتازة
Fair	Fair	Good	V. good	Excellent

2- ما هي الفائدة التي عادت اليك من وجود سوق بمواصفات عالمية؟

2-How was the benefited from the presence of market designed according to international standards?

3-زيادة الدخل Increase income	2-الدخول في سوق الصادر Entry in the export market	1-زيادة حجم التعامل Increasing the size of the deal
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3- أى تعليق آخر تود اضافته:.....

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أسم وعنوان جامع البيانات

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## **Appendix (4)**

### **Checklist for Personal Interviews**

#### **ILPMP Staff / LIUs Officers**

What are the Impacts of the project on:

A- Livestock production ( restocking project) and animal health?

B- The income of different beneficiaries involved in restocking project?

C- Livestock markets (Damazin &Sinjha)?

D- The surrounded environment (e.g health, education, water harvest ...etc?)

E- Livestock export?



## Appendix (5)

مدفوعات منتج الثروة الحيوانية للرأس الواحد خلال عملية التسويق لليوم الواحد داخل السوق:-

الترحيل الي السوق	رسوم دخول السوق	رسوم ضامن	رسوم مبيت (حظيرة)	العلف والماء	الخدمات البيطرية	جملة التكاليف
5جنيه ضأن	لا توجد حاليا	5جنيه ضأن	4جنيه ضأن	3جنيه ضأن	1جنيه ضأن	18 جنيه
40جنيه للابقار	لا توجد حاليا	10جنيه ابقار	7جنيه ابقار	10جنيه ابقار	3جنيه ابقار	70 جنيه

المصدر: المسح الميداني 2015م

مدفوعات تاجر المواشي للرأس الواحد بعد الشراء والشحن من سوق الصادر متوجها الي مكان

التصدير

الجملة	رسوم مغادرة	ايصال مخالفة من حركة المرور	مواصفات ومقاييس	ترحيل (اجرة عربية)	رسوم منفستو	ضريبة قيمة مضافة +ضريبة دخل	رسوم صادر وفحص	رسوم مباع (عوائد السوق)
2جنيه ضأن	75جنيه للعربة	50جنيه للعربة	110جنيه للعربة	1000الي الخرطوم	19%من اجرة العربية	6جنيه	3جنيه	
4جنيه ابقار	75جنيه للعربة	50جنيه للعربة	110جنيه للعربة	700 الي مدني	19%من اجرة العربية	17جنيه ابقار	7جنيه ابقار	

المصدر: المسح الميداني 2015م \*سعة شحن العربية للضأن 100 رأس \*سعة شحن العربية ابقار 15 رأس

مكونات السوق (الوحدات الملحقة بالسوق) حسب تقديم الخدمات للمتعاملين بالسوق:-

المرحقة	حظائر اعلاف	حظائر المبيت	مسابط الشحن	حظائر الشحن	الميزان	الكافتيريا	نافذة بنك	وحدة المعلومات	مسطبة الدلالة	الوحدة البيطرية	الادارة
المحرق	يتم فيها حرق النفايات	يتم فيها حفظ وبيع الاعلاف المركزة والمالئة	يتم فيها شحن الحيوانات الي الشاحنات المراد بيعها	يتم فيها حجز الحيوانات المراد شحنها	يقدم خدمة وزن الحيوانات حية (الوحدة الحيوانية)	تقديم خدمات الاكل والشرب للمتعاملين بالسوق	حفظ نقود التجار والمنتجين للتأمين	تحليل الاسعار وعرضها في شاشة الدلالة	يتم فيها عرض الحيوانات بالمزاد العلني	فحص الحيوانات الداخلة والخارجة	ادارة وتسيير السوق

المصدر: المسح الميداني 2015م

## Appendix (6)

List of people interviewed or called during the study

<b>Name</b>	<b>Organization</b>	<b>Position</b>	<b>Phone</b>
Awatif Abdalla	ILPMP	Project Coordinator	0128146791
Salma Elsaed	ILPMP	Monitoring and Evaluation Unit	0123723219
Eltaib Ahmaed Eltaib	ILPMP	Eastern sector LIU Sinjah Office State Team Leader	0912764220
Abdelazeem Hamid Mohammed Ibrahim	ILPMP	Abu Hugar LIU Team Leader	0912612641
Ahmad Eltaib Hamid	ILPMP	Damazin LIU Team Leader	0121254645
Abdalalim Eljak	ILPMP	Abu Hugar LIU	0915998748
Ahmed Elhag	Sinjha livestock market	Sinjha livestock market manager	
Mohamed Elmjtaba Adam	ILPMP	Sinjha Livestock market Office	0915484465
Aljaili Ahmed	ILPMP	Damazin Livestock Market Office	0119690540
Yousif Elsadig	ILPMP	Sinjha Market information Unit	0918101254

\*ILPMP Improving Livestock Production & Marketing Project.

\*LIU Locality Implementation Unit.

## Appendix (7)

### Water points distribution per localities and outputs

Locality	Water point Name	Cost & contribution (SDGs)			Beneficiaries (direct + indirect)		VDC Revenue 30%	Revenue used in						
		Project	Communities		HHs	Livestock		O&M	hospital	School	Sub-project	Mosque	Incentives/ Training	others
			In kind	In cash										
Abuhja	Umarda	185,580	34,796	11,598,75	833	12000	30%			✓	✓			
	Umkhairain	205,160	38,3675	12,8225	500	15100	30%		✓				✓	
	Alsahba	117091.4	21.954,638	7,318	1676	65000	30%		✓	✓				
	Werket	234.794	44.0238.75	14.674.625		1600	30%		✓					
	Almujawer	232,254	43.547.625	14.515.875	1666	33035	30%		✓	✓	✓			
	Jabal Buna	224.693	42.129.937	14.0433.125	1250	16,500	30%							
	Eltarow	195.963	36,793	12,247,68	833	18000	30%							
	Mahboubba	120.951,20	22,678,45	7.559.45	250	20,080	30%							
<b>Sub total</b>		<b>1.516.4866</b>	<b>284.291</b>	<b>9478019</b>	<b>7008</b>	<b>181315</b>								
Damaz	Yarwa	88800	16650	5550	300	28150	30%		✓	✓		✓		
	Girawa	183200	34850	11450	600	22005	30%		✓	✓		✓		
	Goli	153600	28800	9600	1960	34600	30%							
	Seidak	213600	40050	13350	500	12620	30%							
	Wad Elfes	189094	28350	9450	200	5000	30%							
<b>Sub total</b>		<b>1011494</b>	<b>148700</b>	<b>49400</b>	<b>3560</b>	<b>102375</b>								

Source: Improving Livestock Production & Marketing Project a-pilot report 2013