



## The Economical Factors That Contribute For Onion Production- at Jebel Marra Project – Central Darfur State – Sudan

### KEYWORDS

Innovations, socio-economic, participation, social welfare, Adoption and diffusion.

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### ABSTRACT

*This study was carried out within the period of 2015-2016 for the purpose of how the Economical Factors Contributed in Onion Production mainly Improved onion seeds- at Jebel Marra Project, Central Darfur State – Sudan. Under community Participation elements as well as its usage to share local community for adoption and diffusion of technology transfer as a benefit innovations. Welling to increase production either in the field of agriculture seeking for socio-economic improvement of the rural poor. By increasing their living standard and social welfare. The data was collected with structured questionnaire form filled by the targeted community and group discussion through regular field trip confirm.*

*The Data analyzed by percentages, table repeatability, frequencies, SPSS and Chi-Square test. The area of the study was divided in to three sectors mentioned as Zalingei, Wadialih and Nyertete District. The sample size of the study chosen accidentally from (2000) IDPs farmers numerically (200) as 10%. To represent the total population whom were reaching the very secure areas for practicing the agricultural activities due to security situation circumstances since Darfur Crisis (2003). The study shows that”*

### 1. Introduction:

Darfur is represented one of the greatest areas in the Sudan its surface is about (510) thousand Kilometer Squared this surface presents (20.3%) from Sudan area before Southern Sudan separation (2011) which it about (2.505.813) kilometer Squared. Darfur consist of (7187) million persons in as estimated in (2007). Darfur suffers from the ancient tribal conflict, but it is raised recently since (2003-2016) to take the form of antecedent and tribal conflict, this struggle not to be anew and Sudan rather it is found for a long time in this region between the tribes because of the dryness and lucking of water in some of rainy season by years. This conflict began mainly after the immigration of many groups of people who are influenced by the dryness which was known as desert and desertification (1984/85), but by the way in to another originally were possessed by settled tribes competing over resources.

### Darfur Region Population Estimation Number From 1956-2007

Years	1956	1973	1983	2002	2004	2005	2006	2007
Population	1.329	2.140	3.094	6.064	6.350	6.700	6.076	7.187

Source: Arab University Statistics, 2003, p22

### Estimation of Livestock population in the three main Darfur States

State	Cattle	Sheep	Goats	Camels	Total
N. Darfur	663675	3595343	2827979	484592	7571589
S. Darfur	4067034	3675019	2934294	91447	10767794
W. Darfur	3909209	3734775	3444606	350157	11438747
Total	8639918	11005137	9206879	926196	29778130

Ministry of Animal Resource and Fisheries (MOASF) (2011) N. Darfur 2. Research Problem:

### 3. Objectives of The Study:

\*To assess the level of grassroots participation on the adoption and diffusion of improved onion seeds in the area of the Jebel Marra Rural Development project and discover the reasons that affects the practices of improved onion growing in Zalingei sector more than Wadialih and Nyertete districts.

The detailed objectives of the study are to:

\* Assess the level of Grassroots participation in the project activities concerning improved onion seeds.

\*Assess the adoption rate of improved onion seeds in (JMRDP), to emphasis on how much the participation factor affect the adoption & diffusion of improved onion seeds.

\*Identify the factors which affect the process of adoption and diffusion of improved onion seeds in (JMRDP) around Zalingei more than other districts.

\*Consider participation element from the grassroots community organizations base in (JMRDP).

\* Come out with recommendations that will develop, encourage and strengthen the rural community participation in the project area to adopt and diffuse the improved onion seeds effectively in (JMRDP) area.

### The objectives of the project:

\* Empowerment of traditional agriculture through extension centers and agricultural inputs, and research, introduction of animal traction.

\* Growing of soft wood plantation and encouraging farmers to replant their farms and the marginal areas around their villages.

\* Construction of road net work in the project area to link production areas with the near markets.

### Historical Background:

Settled farmers make up 80% of the half million population. They benefit most from project activities. They crop about 2,000km<sup>2</sup>, mainly in the alluvial wadi system fed western slopes of 3,000m high Jebel Marra. Volcanic soils on Jebel Marra are productive but elsewhere, basement complex soils are used mainly for grazing, by cattle, sheep, goats and camels.

Rainfall is from May to October, now due to the climate change process also the natural situation was changed from the previous one the rainfalls on July and ended with the end of September as showers and it differ from the north to south areas of the Great Darfur (Salam, 2014). It ranges from 400 to 600mm but rises to 800+ on the Jebel Marra. There is much variation between drought and good years. Millet, sorghum, groundnuts and pulses are the main wet season crops, but there is increasing small scale irrigation of Onion in the dry season. Potatoes, cherry tomatoes and citrus are important on the

Jebel Marra.

Nyala, on the railway is the major market for produce from the project area. It is linked Zalingei, which is the only major town, and hence headquarters for the project, by 220km of tarred road. All other roads have gravels surfacing at best, with few structures, and are often impassable during the rains.

#### The project:

The present project was preceded by investigations and studies dating from 1957 to consider major irrigation development. This was eventually shelved in favor of developing small holder rainfed agriculture. Phase 1 started in 1980, funded by Government of Sudan and the European Development Fund, with technical assistance from Hunting Technical Services. Phase 2 runs from July 1987 for five years. The project is constituted as a Government Corporation which reports to the Ministry of Agriculture and Natural Resources (MANR).

It is implemented by a director General through seven departments. The primary tasks are to identify and develop new technologies for the area through adaptive research, to extend those technologies to the farmers and to make available any inputs needed. Inputs are sold at cost for cash or credit.

#### 4. Research Question:

\* What extent Jebel Marra Rural Development Project followed participation approach to facilitate the adoption and diffusion of improved onion seeds?

\* What extent Jebel Marra Rural Development Project is essentially based on the top down approach mechanism to provide agricultural packages improved onion seeds?

\* How much the previous studies and considerations concern the project area foundation completed by HTS, as a preparatory resources identified contributed of the project succession?

\* How much Community participation approach is not accompanied as packages of the project policy regarding adoption and diffusion improved onion seeds at the project area?

\* How much Extension work mechanism used as a key element for the project contribution to realize its objectives and goals in the field of vegetable cash crops provided mainly potato and improved onion seeds.

#### 5. Research Methodology:

##### 5.1 Method of Data Collection:

##### 5.2 The Study Area:

The study area covered Central Darfur State, which consists nine Localities. With three geographical different zones, either due to climatic factor or livelihoods activities for the community. According to Greater Darfur divided in to five States Central Darfur is fully under the project coverage of the activities.

#### The Jebel Marra Rural Development Project:

Series of studies in Jebel Marra has been undertaken during the past 20 years. As a result of one of these studies, four pilot development areas.

Again in October 1978 the ministry of Agriculture, Forestry and Natural Resources prepared the project for financing, but it is much reduced in scale due to financial limitations. This proposal made no provision on for any further development of the pilot development areas, but introduced a large softwood plantation program at Jebel Marra.

Jebel Marra development project started operations in 1980 in two phases, the first phase from 1980 – 1984 and a transitional phase from

1984-86, and phase 2 from 1986-1990.

The following positive results of the project the agricultural bank of Sudan granted medium term of loan for the three seasons 82-84-1983 to finance 1000 small farmers with a total sum of Ls.567,000.

#### The project Area:

The project was located at western Sudan in Darfur Region for small farmers to grow food crops as well as cash crops i.e. Sorghum, millet, groundnut and sesame. The potential area is 7880656 feddan which equal (1799236.53 Hectares).

Location: Zalingei and Jebel Marra with three extension centers at Nyertete, Dankog and Garsila.

**Soil:** Loamy soil near the Wades Volcanic soil on the Jebel Marra area.

**Irrigation:** Rain falls for traditional agriculture and surface wells for horticulture.

#### Benefits and justifications:

To achieve and increase in the area cultivated as well as increase in production, thus improving farmer's income.

#### Aims:

The Jebel Marra Rural Development project aims assist small farmers in 33,000km<sup>2</sup> of western Darfur to raise productivity and improve their living standards. This is mainly by providing advice and selected agricultural inputs. Feeder roads are being improved, and some communities helped with wells, health clinics, and women's training.

#### 6. The Conceptual Framework

- Knowledge and skills of the community as a long run of experience
- Suitable Land preparedness
- Water availability
- Climate

#### Marketing opportunity:

Onions provide many attractive qualities to consumers, particularly in today's health-conscious market. Research has shown that onions are low in calories and are a good source of dietary fiber and vitamin C.

#### Marketing worldwide:

Onions can be divided into three marketable categories: spring ("green"), summer fresh market onions and fall/winter storage ("dry bulb") onions. Fresh market, or green, onions are pulled while the tops are still green and usually before a large bulb has formed. Fresh market onions can be identified by thin, light-colored skin and may have edible green tops. Summer storage onions (often referred to as dry bulb) accounted for about 87 percent of annual U.S. onion production in 2014.

An important niche market and value-added success story is centered on the Georgia Vidalia Onion industry. Vidalia® onions are the pioneer of sweet onions and are grown only in the mild climate and unique soil surrounding Vidalia, Georgia. This fresh-market onion is available nationwide on supermarket shelves and commands a premium price.

While the fresh market and storage onion markets account for the largest share of onion use, other markets also account for significant production. Most onions used in canning and freezing are sourced from fresh market varieties, while dehydrated products use separate varieties having higher solids content.

#### Marketing of onions locally Central Darfur State:

The only production period is winter by September to December, and production in other periodic time is off season in low quality with

more risk economically. Onions consumption either dry which is common or fresh in with (Salad) leaves and bulb as a whole. Onions was introduce in some Gaseous drinks in neighboring country (Tchad) which rise up the value chain of the product.

Onions are the first most consumed fresh vegetable in Central Darfur State, behind tomatoes and potatoes.

**7. Results & Discussions:**

**Introduction:**

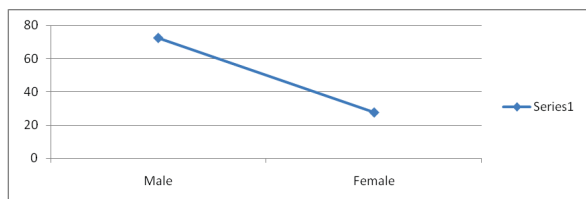
In this chapter the researcher represented the results of the study analyzed with certain methods using, statistical package for social sciences (SPSS), percentages and frequencies. The data collection followed; Simple random sampling, geographical direction, field survey and special structured format questionnaire used. Through random accidental selection targeted respondents were selected 10% from approximately (2000) farmers farming around the state level due to Darfur crisis situation. Sample size was breakdown to represent that cumulative number of the studied beneficiaries equal (200), this selected number were distributed into three sectors mainly Zalingei (100) farmers by gender to give them chance for competition equally as sample members to be represented. Wadisalih and Nyertete (50) per each, according to some similarities in the two sectors either farming systems in the rainy season or environmental factors which allow for some horticultural crops practices, below the details should consider the outcomes of the study with the proposed recommendations.

**Sex:** Table (4.1.5) Distribution of Respondents according to their sex

Sex Differences	Frequency	%
Male	145	72.5
Female	055	27.5

Source: Field Survey, 2014

Table 4.1.5 Shows that 72.5 % respondents are male and 27.5 % Female and this variation Indicate that the methods of agricultural facilities has been changed and highly cost like mechanization used and improved seeds adopted. Family responsibilities and ability to pay the cost of tools or agricultural inputs male have a wide chance more than female also in lawns and bank lends system share there for the cause need successful gender analysis (SGA).



**Figure 1** represent respondents by gender

**Social Status**

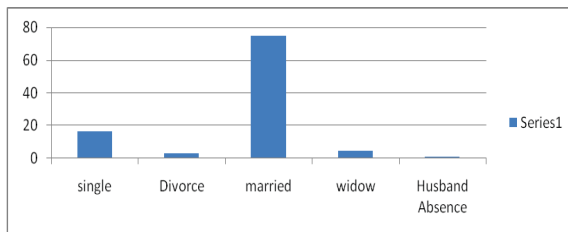
Table (4.1.7) Distribution of Respondents according to their social status

Social Status	Frequency	%
single	033	16.5
Divorced	006	03
Married	150	75
widowed	009	04.5
Husband Absence	002	01
Total	200	100

Source: Field Survey, 2014

Table 4.1.7 shows that 75% of the respondents are married, it indicates that their responsibilities let them to be well committed

with agricultural activities and professionalism on the process by traditional background suitability in the whole state either to be farmer or mix with livestock herders (see the table below) on the other hand single respondents 16.5 % It shows the youngest groups among the targeted sample of study and not socially engaged.



**Figure 3** represent respondents by Social Status

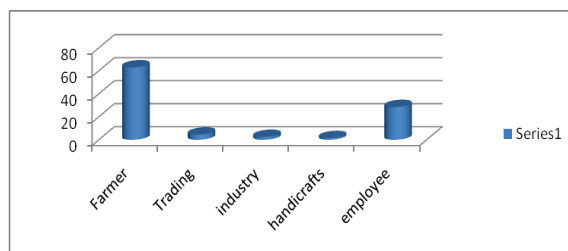
**Work Type**

Table (4.1.8) Distribution of Respondents according to their work type

Type of Work	Frequency	%
Farmer	126	63
Trading	009	4.5
industry	005	2.5
handicrafts	003	1.5
employee	057	28.5
Total	200	100

Source: Field Survey, 2014

Table 4.1.8 Shows that 63% of the respondents are farmers and 28.5% are employee. And 8.5% are involved in other type of work. Also employee recently joint with their official work agricultural practices, due to situation change either social services cost or family basic needs on daily base.



**Figure 4** represent respondents by Type of Work

**Agricultural Land Tenure System**

Table (4.1.9) Distribution of Respondents according to their owning of agricultural land.

Land System	Frequency	%
owner	089	44.5
rent	091	45.5
Grant	002	01.0
Crops Share	018	09
Total	200	100

Source: Field Survey, 2014

Table 4.1.9 Shows that the owner and rental land are 45.5 % - 44.5 % and only 10% practice the land by the other methods of grant and share cropping. This phenomenon refer that, some of the farmers are internally displaced persons (IDPs) in Camps far from their origin land. Then they depend on land rent Crops share.

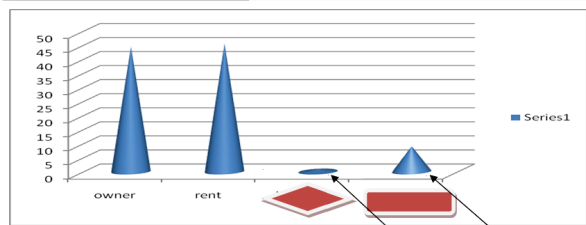


Figure 5 represent respondents by Land Owning Grant Crop Sharing

**Having an Idea about Improved (Onion Seeds)**

Table (4.1.10) Distribution of Respondents according to their Idea about Improved Seeds (Onion)

Idea about Improved Onion Seeds by answered yes /no	Frequency	%
Yes	162	81
No	038	19
Total	200	100

Source: Field Survey, 2014

Table 4.1.10 shows that 81% respondents said they have an idea about Onion improved seeds, and 19 % answered negatively or were not aware about it. But those who answered yes they mentioned by which ways them here about the Onion improved seeds.

**The Way of Information Sources**

Table (4.1.11) Distribution of Respondents according to their information sources about improved (Onion) seeds

Sources of Information	Frequency	%
Other farmers	088	44
Media	016	08.0
Agricultural Extension department	067	33.5
Crop Protection department	004	02.0
Others	025	12.5
Total	200	100

Source: Field Survey, 2014

Table 4.1.11 shows that 44% of Respondents had the idea of improved onion seeds from other farmers and 33.5 % form Agricultural Extension and 8% from the media. This indication shows the weakness of extension services.

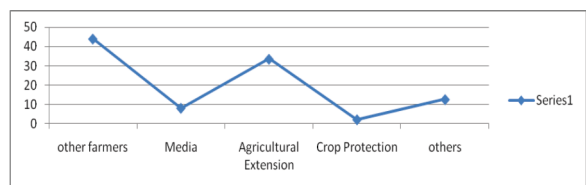


Figure 6 represent respondents according to dept idea about improved onion seeds.

The result shows that the neighboring farmer and agricultural extension department was source of information for the respondents considered.

**Tools Collection Procedure:**

To achieve the study objectives, The Data collection was collected from (200) respondents were selected as a sample size. Personal interviewing as well as informal meetings were means of primary data collection and followed with field survey.

While secondary data were collected from relevant sources such as institutions, organizations, books, reports and M.Sc. PhD thesis.

The following was considered:

- Farmer's personal characters.
- Participation in extension field work.
- Participation in extension campaigns.
- Participation in extension training.

Participation in extension field visits. (Not only have the participation but the rate of adoption packages of innovations to improved onion seeds, in addition to gather of other relivant information).

Level of participation in project planning, implementation, monitoring and evaluation.

Level of participation in community base organizations. The collected data shall be subjected to different statistical analysis, which are statistical packages for social sciences (SPSS).

**Data Analysis:**

Statistical package for social science (SPSS), Percentages, frequencies was followed to fulfill the requirements of social data analysis.

**Material and Methods:**

was consists social research method used:

- primary:** Face to face contact with farmers followed: interviews, group discussion, field survey and observations within the project area movement.
- Secondary:** official publications as an example, books, reports, M.S.c, PhD thesis and scientific papers.

**General Recommendations:**

Base on the findings of the study, the researcher proposed the following:

**Recommendations for National Federal Ministry of Agriculture:**

- To update strategies and plans that will recover the needs of the grassroots development gap as agricultural inputs, mainly for vegetable production assets.
- To promote and activate the national plans that have tangible affect on Agricultural inputs priorities and fulfillments of the local needs.
- To engage national and state level plans with very close coordination and consider priorities to confirm matching with the project objectives.
- To encourage the investment by community base organization (CBOs) and government institution sector to promote vegetables production.
- To strengthen vegetable production marketing through boarder countries.
- To assist and support adoption and Diffusion policies that related with the project recommended objectives, (Specific, Measurable, Attainable, Relevant, and Timely). [S.M.A.R.T]
- To encourage gathering efforts between ministry of agriculture and the project in order to manage resources through coordination plans and optimal used of assets.
- To coordinate and revise the project plans with continuous monitoring and evaluation system or tools
- Attention should be given to women in agricultural programmes that enable them to contribute effectively in improving living standards and welfare.
- To strengthen agricultural extension services and cooperate with agricultural research centers to promote transfer of innovation, in order to encourage adoption diffusion entirely.
- To accommodate and encourage the possibility of improved onion seeds to produce locally.
- To provision of irrigation tools mainly water pumps and providing of concrete wells.
- To provision of insecticides and agricultural machineries, furthermore creation of awareness among farmers is necessary

to know how to manage it usages.

- To rehabilitate the experimental centers to strengthen vegetable research.
- These are projects that endeavor to improve the social and organization conditions of low-income rural communities, such as health, sanitation, rural education, community organizations, training, etc.

#### **Recommendations for Credit institutions in Central Darfur State:**

Fields of Activity: Through its lending and technical assistance operations, the Bank will assist in national efforts to identify appropriate rural development solutions compatible with the specific circumstances of each period and place. Special emphasis will be placed on three complementary fields of activity:

- Strengthening the national capacity to identify and prepare better programs and projects, including support for the formulation of policies for improving the general framework of rural development and efforts to link the analytical and research capacity of the region more productively with the search for and formulation of operational solutions.
- Mobilizing the efforts of rural populations, which entails encouraging their participation in decision-making, organizational activities, training and rural education, social communications, including, where appropriate, the development of associative-type economic organizations that can open the way to socially and economically feasible solutions.
- Financing programs and projects that will contribute to capitalizing and galvanizing the rural economy, and that will act on the mechanisms for the retention and reinvestment of surpluses generated in rural areas, including support for towns operating as service and marketing centers. In this regard, the Bank grants loans for:
  - Rural production projects for low-income farmers. Their purpose is to help increase the production and raise the income of small farmers by allocating resources for a single activity that deals with a specific constraint preventing or hindering development.
  - To provision of fund facilities supporting the community base organizations to implement their activities in socio-economic base mainly on agricultural production.
  - To cooperate and work together in partnership with grassroots organizations to encourage community participation process depending on their priorities.

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