



The Challenges of Aweil Rice Scheme Production

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1. Abstract

Regarding the challenges of Aweil Rice Scheme there were aspects that had been mentioned for the failure of Aweil Rice Development Project. Among them are: Lack of institutional agenda for maintenance of both producer and consumer prices so as to protect producers in years of excessive production and consumers to sustain consumption when retail prices rise beyond their normal purchasing power; and Low income levels of urban residents, which constitute for surpluses produced in rural areas. The aim of the study was to examine the variation in the quantity yield of the production and study the production ability for food consumption in the area, to measure the production level in Aweil Rice Scheme; and then strategize the quantity of yield of the produce for nations' consumption. In this study design, survey design was used because research interrogations demand collecting information by interviews. The study population was only on assessed population of the South Sudan members working in Aweil Rice Scheme, and the implied population was (240) the sample size was (120) respondents. The instruments were interview schedules and observation. The result of the findings was that: a larger quantity of production in Aweil Rice Scheme can provide national need, surplus for export and expected productivity; and the reasons for choosing rice as the only crop to be produced instead of diversifying the production of various crops was due to suitability of land, and plenty of water. Therefore, if the government and their partners make emphasis on reduction of the Aweil Rice Scheme Production challenges, then there would be obtainability of nutrition and starvation would be scaled down in South Sudan.

2. Keywords

- ❖ Sustainable Agriculture.
- ❖ Irrigation Schemes.
- ❖ Population Growth.
- ❖ Annual Yield.
- ❖ Local Demand.

3. Introduction

Farming of domesticated species created food surpluses that nurtured the development of civilization. The development of agriculture has been driven and defined by greatly different climates, cultures, and technologies. However, in the developed world, industrial agriculture is based on large-scale monoculture which has become the dominant system of modern farming, although there is growing support for sustainable agriculture, including permaculture and organic agriculture. A remarkable shift in agricultural practices has occurred over the past century in response to new technologies, and the development. Agriculture has played a major role in human history, as agricultural progress has been a crucial factor in worldwide socio-economic change. The development of agriculture made civilization possible.

The Green Revolution increased agricultural production around the world, beginning most markedly in the late 1960s. The Green Revolution saved hundreds of millions of people from starvation and significantly increased rice yields in Asia.

South Sudan has very high potential of agricultural production that is woefully underutilized. Up to 95% of the country is suitable for agriculture, with 50% classified as prime agricultural land which is suitable for a wide range of food and cash crops. However, for a number of reasons, less than 5% of the country's total land area is cultivated. South Sudan is still very largely an area of subsistence agriculture based on the practice of shifting cultivation. The development of a cash economy has been retarded by the great distance from potential markets coupled with poor transport and marketing facilities, by lack of interest and incentives, and by shortage of capital and limited supply of labour. Trade in agricultural products is restricted to the sale of small amounts of food crops to provide for the payment of taxes and the purchase of small quantities of clothing, tools, and household goods.

There are various ecological zones in South Sudan and all areas have the capacity for crop production. In particular the greenbelt zone has high agricultural potential, as there are two cropping seasons. Agriculture continues to be dominant part of the South Sudan economy and accounts for around 80% of employment, including that in agro-industries.

Agriculture in South Sudan is comprised of rain-fed systems characterized by shifting cultivation and inter-cropping of traditional crop varieties, which are well adapted to the local soils, climate, pests and diseases. Similarly, agricultural production tools and implements for land clearing, weeding and harvesting have remained traditional and most suited for subsistence production. To move production from subsistence to surplus in export market, both crops and production tools need to be developed. There are wide variations in the systems of agricultural production found within the boundaries of South Sudan.

South Sudan's agricultural sector remains under-developed because of the legacy of war and conflict, persistent poor mechanization, and lack of access to finance. There is lack of agricultural marketing system in South Sudan since the Government has not yet promulgated agricultural sector marketing system. The policy has been drafted and awaits passing by the National Assembly.

The study in 1954 reported potential irrigation development sites among them was the Mbili near Wau City on the River Sue. Survey of irrigable areas along the White Nile up to Sobat mouth was completed in the 1950s.

Irrigation in South Sudan is practiced in seven states with the total number of 35 irrigation schemes out of which 23 schemes are under NUNIS. Newly irrigation schemes were established after 2006 and are under established.

Irrigation infrastructure in South Sudan is extremely poor due to vandalism and lack of repairs during the war. The total area earmarked in Mangalla for irrigation in the Nile Waters Master Plan is 250,000 feddans while 50,000 were related to Jonglei Canal project.

4. Literature Review

4.1 Farming Practices and Types in South Sudan

The farming practice in most parts of South Sudan is subsistence farming. Subsistence agriculture is self-sufficiency in which the farmers focus on growing enough food to feed themselves and their families. The typical subsistence farm has a range of crops along with either pigs/chickens and bee-keeping or some livestock/animals needed by the family to feed and clothe themselves during the year. Planting decisions are made principally with an eye toward what the family will need during the coming year, and second toward market needs approximately 78% of households in the country are engaged in agriculture and the average farm size per household is about 1.12 ha (FAO/WFP, 2013). The total cereal area harvested has gradually increased since 2008 from 853,000 ha in 2008 to 1,085,000 ha in 2012. The area harvested per capita, however, has been at the same level throughout this period since the population growth rate was almost the same as the expansion rate of the cereal area harvested (NBS, 2012).

Generally, the rainy season is from May to November. The rainy season in the Green Belt areas (in Eastern, Central and Western Equatoria states) starts in March or April, earlier than other states. It is one of the factors that the overall period, interval and amount of rainfall influences the unstable productivity of crops caused by the climate and seasonal variability, manifested in dual occurrence of floods or droughts.

The major staple crops grown in the Republic of South Sudan are sorghum, maize, cassava, rice and millet. Sorghum ranked the first important crop followed by maize as the second important crop and cassava ranked the third important crop which is a relatively new crop in South Sudan. Upland rice (non-irrigated/rain-fed) is mainly grown in Western Equatoria State and lowland rice in northern flooding areas especially in Northern Bahr el Ghazal, Aweil Rice Scheme and other small-scale cultivations. Millet is grown mainly in Lakes and Western Equatoria States (Noar and Jacob, 1986).

4.2. Agricultural Policy in South Sudan

Agricultural Policy in South Sudan has its roots from the time of Southern Regional Government. Within the broad policies of the National Government of the Sudan, the Southern Regional Government had its own agricultural

policy. For example, in the approved six years National Development Plan 1977/78-1982/83, the general objectives for the agricultural section were:

1. Achievement of self-sufficiency in agricultural products which are presently imported;
2. The expansion of agricultural exports;
3. The diversification of agricultural production and exports; and
4. The balancing of regional development (Dhal, 1997).

Whereas, the objectives of the six-year National Development Plan 1977/78-1982/83 for the Southern Region with respect to crop production were:

1. Self-sufficiency in staple foods with adequate reserves to stabilize prices;
2. Surplus production of cash crops such as coffee, tea, tobacco, rice and kenaf to meet the requirements of the whole country and to earn revenues with which to buy commodities such as sugar and fuel which have to be imported from the north or abroad; and
3. Increased production of pulses, vegetables and fruits in order to ensure a more balanced diet for the rural population and to meet the requirements of the urban population.

At the time of SPLM the goal and purpose of the Agricultural Policy Framework was to guide the Sudan People's Liberation Movement/Government of Southern Sudan (SPLM/GoSS) and other stakeholders in their effort to put in place conducive agricultural policies or laws and to attain a better understanding of the existing knowledge and experiences in the potential agriculture and natural resources in the Southern Sudan. The envisaged Agricultural Policy Framework provides a road map to help in strategically addressing the constraints and challenges which were hindering full and effective harnessing the regions agricultural and natural resources potential (RSSMAFCRD, 2012).

Following the establishment of the Ministry of Agriculture and Forestry in October 2005, the Food and Agriculture Policy Framework was formulated to guide the development of the agricultural sector for the period 2007-2011. Among the main goals of the Framework 2007-2011 were to achieve food self-sufficiency by 2011 as well as to reduce the incidence of poverty by 30% in 2011 (RSSMAFCRD, 2012).

The food deficit in Southern Sudan was generally structural and stems from a combination of:

1. **Low Agricultural Productivity:** The causes of low productivity are due to a combination of factors namely limited access to quality inputs and predominant use of traditional technologies by farmers; low level of farmer skills; low productivity of farm labour; inadequate agricultural inputs; poor agronomic and production practices; lack of integrated livestock-crop-tree production systems; loss of soil fertility; and erratic climatic conditions characterized by frequent droughts, floods and other unusual weather events.

2. **Poor State of Infrastructure:** Roads are in bad condition.
3. **The Loss of Productivity Ensuing from Incessant Conflict:** The civil wars have caused insecurity and made people not to be stable because they have been on the run. This has prevented people from farming.
4. **Inadequate Provision of Agricultural Services:** There is lack of agricultural services due to lack of funds.
5. **Weak Institutions and Lack of Policies and Regulations:** South Sudan after independence started from the scratch. Institutions have just started their foundations and there are no policies to guide the procedures of work. Agricultural policy was just promulgated and marketing policy of agricultural products is not yet in place.
6. **Inadequately Skilled Human Resources:** Personnel in South Sudan lack skills due to the fact that the war disrupted education.
7. **Irrational Use of Natural Resources:** Most of the natural resources are not exploited to benefit from them. It is only oil which South Sudan is depending upon whereas other natural resources are not fully explored and exploited.
8. **Poorly Organized Rural Communities:** Rate of literacy in South Sudan is very low. Majority in the country side are illiterate and this results to disorganized communities in the rural areas.
9. **Absence of an Appropriate Land Tenure System and Land Law:** The laws of South Sudan make the land to belong to the community. This has been misunderstood of which the communities prevent the government not to allot the land to those who can exploit it.

Grain prices in the first months of the year 2011 were above their four-year average (2007-2010) and higher than those registered in most markets in 2010. A more concerted effort was required to achieve the goals of food self-sufficiency and reduced poverty levels. Food and Agriculture Policy for 2007-2011 was revised to be an Agricultural Sector Policy Framework for 2012-2017. This Agricultural Sector Policy Framework for 2012-2017 was formulated with the goal of increasing production and productivity on a sustainable basis by addressing key constraints in food and agricultural production, marketing, distribution and value addition. An Agriculture Policy Implementation Strategy (APIS) as well as various development programmes, including value chain development programmes, and intervention projects will be developed to implement ASPF at national and state levels. This revised policy framework, was initially prepared by stakeholders in 2011 as Food and Agricultural Policy Framework (FAPF) for 2011-2016, but was later modified in 2012 as an overarching Agricultural Sector Policy Framework (ASPF). The framework sets the general tone on how the sector should be managed to realize the overall objectives of ensuring food self-sufficiency and agro-industrial development. It also includes some additional aspects based on emerging issues such as bio-fuels, carbon trade, and green agriculture as a contribution to climate change mitigation measures (RSSMAFCRD, 2012).

The strategic objectives of the agriculture, crops and animal resources including, Fisheries, Forestry or Agro Forestry Policy Framework for South Sudan are therefore to provide a vision, mission and direction for establishing policies,

regulations, programmes and projects for the public sector, private sector and civil society working in partnerships to achieve people-centred socio-economic development with a vision of ‘Food security for all the people of the Republic of South Sudan, enjoying improved quality of life and environment;’ and a mission ‘to create an enabling environment for the transformation of agriculture from a subsistence system into a modern, socially and economically sustainable system through science-based, market-oriented, competitive and profitable farming while maintaining the integrity of the natural resource base for the benefit of future generations of South Sudanese people;’ and the goal which is ‘increased agricultural productivity to improve food security and contribute to economic growth’ and the broad strategies such as:

1. Ensuring the coordination of the agricultural and related policy interventions to remove any constraints to crops, forestry, and animal and fisheries resources development.
2. Promoting a two-way (bottom up and top down) planning and budgeting process by empowering regional and local governments and enabling them to influence public policy and allocation of public resources to alleviate location-specific constraints.
3. Deepening decentralization to lower levels of local governments for efficient service delivery to the people of Southern Sudan.
4. Removing direct government involvement in commercial aspects of agriculture and promoting the role of the private sector and Civil Society to handle the commercial undertaking.
5. Supporting the dissemination and adoption of productivity-enhancing technologies through capacity building of the Ministry/Secretariat of Agriculture and Animal Resources.
6. Guaranteeing food and nutrition security through the market and improved incomes, thereby allowing households to specialize in market-oriented production, rather than through household self-sufficiency.
7. Ensuring that all intervention programmes/projects are gendered-focused and gender-responsive.
8. Making poverty eradication the overriding long term objective of agriculture (crops, forestry, animals) and fisheries resources development.
9. Making the main beneficiaries the subsistence farmers who constitute the majority of the poor in rural areas, semi-commercial farmers and eventually commercial farmers (Craig, 1991).

However, agriculture development efforts in South Sudan face major impediments. Among the supply-side major constraints include:

1. Weak institutions, coupled with poor public investments in the agricultural sector, undermine agricultural development.
2. A fragile land tenure system has caused a misuse and erosion of natural resource, and escalation of conflicts. Poor land use planning has also led to wanton destruction of forest cover as population increases
3. Poor rural physical infrastructure and rudimentary markets with limited access that hinder agricultural growth.

4. Unfavourable weather conditions such as persistent drought and annual flooding that lead to crop losses and, together with conflicts, communal violence and intra-ethnic clashes, cause loss of rural livelihoods and widespread displacement of people.
5. Poor soil management practices leading to land degradation and poor fertility levels.
6. Low usage of fertilizers, improved seeds and other productivity enhancing technologies, combined with poor management and skills.
7. Poorly organized rural communities, with minimum empowerment in terms of knowledge, skills and financial resources (Craig, 1991).

On the other hand, there are demand-side constraints and challenges, which also frustrate the growth and development of the agricultural sector. These include, but not limited to:

1. Weak linkage between the rural areas where production takes place, and urban centres where demand for the produced goods exists, occasioned by a combination of factors: poor transport network, rural financing, and lack of food preservation, processing and packaging facilities, which results to huge seasonal wastage at harvest time, especially for perishable goods.
2. Lack of institutional framework for stabilization of both producer and consumer prices so as to protect producers in years of excessive production and consumers to sustain consumption when retail prices rise beyond their normal purchasing power.
3. Low income levels of urban dwellers, which constitute the main market for surpluses produced in rural areas.
4. Tariff and Non-Tariff barriers for exportation of agricultural produce, which includes restrictive entry value-added goods to high paying markets in Europe and America (Davies, 1991).

Whereas, the main challenges to the growth and development of agricultural sector are:

1. Increasing productivity and incomes of South Sudan's producers by improving the technology of production, providing support services, improving the policy and institutional environment.
2. Enhancing the incomes of urban dwellers so that they can provide a competitive market for the agricultural produce.
3. Establishing a pluralistic and participatory extension system with the aim of developing demand driven and competitive services.
4. Building a pluralistic research and development system with an active involvement of farmers in setting research agenda and monitoring/evaluation of findings and results.
5. Fostering market-oriented production by addressing the problems of missing markets, diversifying crop enterprises to include higher value cash crops, and linking farmers to national, regional and international markets.

6. Overcoming the 'Dutch' disease effects of oil-exporting, i.e. a higher exchange earnings strengthen the exchange rate to such a degree that traditional exports such as agricultural cash and food crops become less competitive in local, regional and international markets.
7. Building institutional and human capacity to provide effective policy and strategic guidance to agricultural development.
8. Creating an environment conducive to development that recognizes and outlines the roles of the Public and Private sectors in providing agricultural services and input delivery services, in an effective and sustainable manner.
9. Creating an enabling environment for the private sector to invest more in agro-processing and value addition.
10. Establishing viable rural financial services to support agricultural production and productivity enhancement and processing.
11. Contributing to the attainment of food and nutrition security for all South Sudanese primarily through increasing food availability and reducing the real cost of food for net buyers of food.
12. Developing appropriate mechanization policies and programmes to overcome labour shortages while ensuring that agricultural development remains pro-poor (Dhal, 1997).

5. Methodology

In the Methodology qualitative method was used. In this study design, survey design was used because research interrogations demand collecting information by interviews. The study population was only on assessed population of the South Sudan members working in Aweil Rice Scheme and the implied population was (240) the sample size was (120) respondents.

The source included primary data sources of which the information was collected straight from the field by means of interviews from the respondents. And secondary data source was access from text books, journals, websites (internet), reports, articles, and newspapers and as well as related studies.

The research instruments which were used in this study were such as interview schedules and observation. Interviews were physically conducted by the researcher. In the interview there were questions asked orally and only structured interviews were used. And the interviews were conducted with every group member under the scope of the study. In regards to the observation, the researcher used it during interview to understand the behaviors patterns in their physical and social context in Aweil Race Scheme.

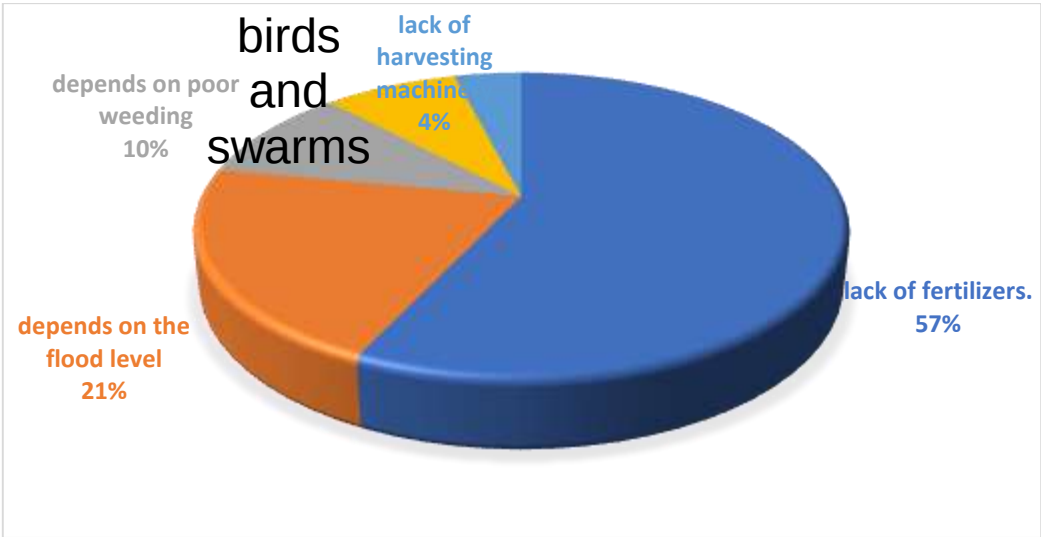
6. Results

6.1. The annual yield of the produce

The reasons for the variation in the annual yield were that: 57% of the respondents stated that it was due to lack of fertilizers; 21% mentioned that it depends on the flood level; 10% mentioned that it depends on poor weeding; 8% mentioned drought, birds and swarms; and 4% stated total area cultivated and lack of harvesting machinery.

Therefore, the respondents concluded that the reasons for the variation in the annual yield was due to lack of fertilizers in Aweil Rice Scheme.

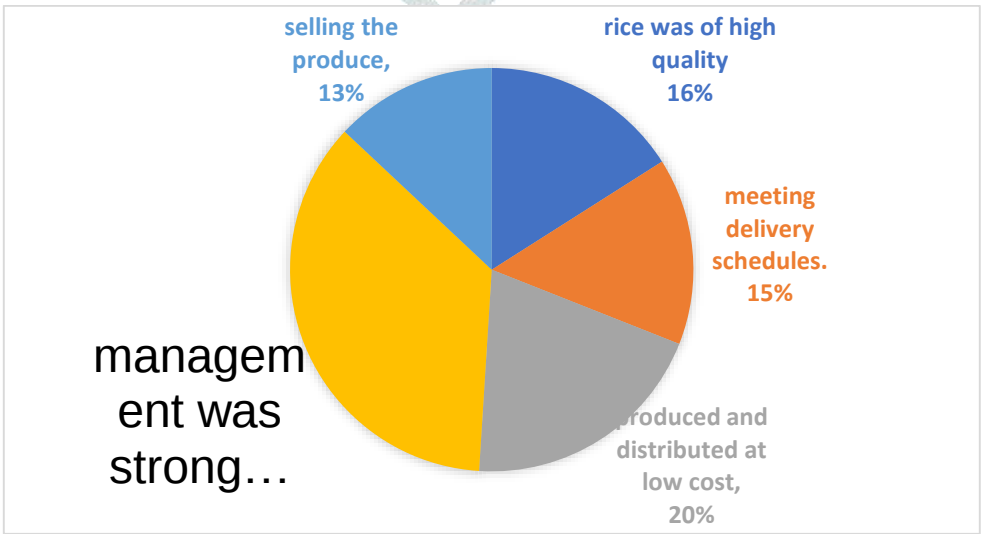
Figure No. 1: The annual yield of the produce



6.2. Strategies for problems of production

The strategies for addressing problems on marketing the produce, according to 16% of the respondents, rice was of high quality, and 15% stated that the Project was meeting delivery schedules. 20% of the respondents mentioned that rice was produced and distributed at low cost, and 36% stated that management was strong due to Government was involved in Management. 13% Project’s staffs were involved in selling the produce, and there were no serious problems to be addressed. Therefore, the strategies for addressing problems on the production of Aweil Rice Scheme was strong due to Government involved in Management.

Figure No. 2: Strategies for problems of production

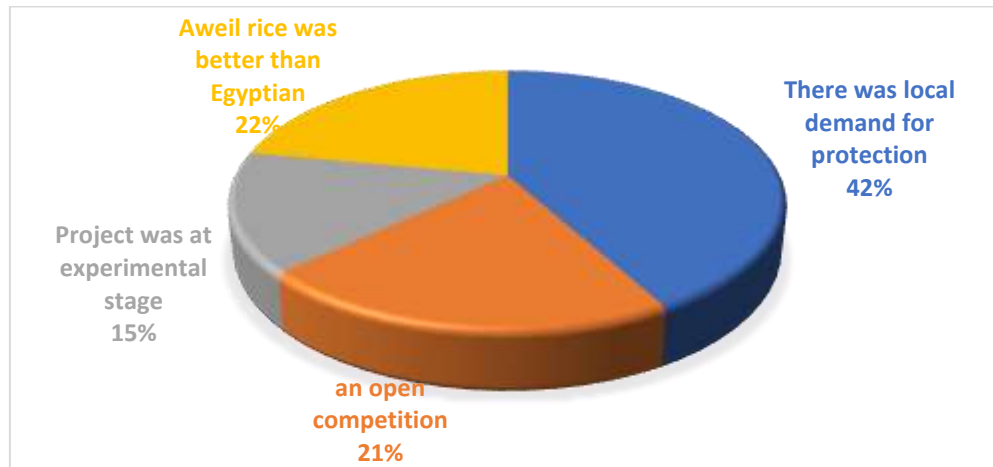


Primary source

6.3. The Government didn't protect the Project

The views of the respondents on this matter were that: 52% of the respondents stated that produce was little and of high quality; and there was great local demand which did not warrant for protection; 21% mentioned that there was an open competition; 15% stated that the Project was at experimental stage; and 12% stated that Aweil rice was better than Egyptian rice in terms of taste and quality, and it was wholly being bought. Therefore, the views of the respondents on this matter were that produce was little and of high quality, and there was a great local demand for production which did not warrant protection.

Figure No. 3: the Government didn't protect the Project



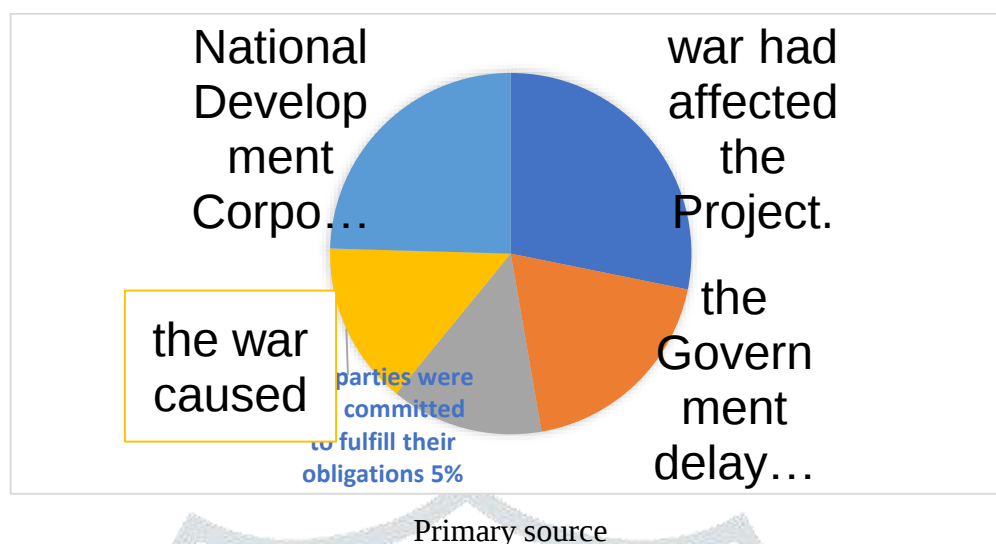
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6.4. Partners did not fulfill obligations

This issue had not been addressed well by the respondents. 31% of them mentioned that war had affected the prospects of the Project. 21% of the respondents stated that the Government of Sudan used to delay payment of salaries. 5% of the respondents mentioned a number of things. Among them are: No partner that did not fulfill its obligation; all the partners from the start of the Project were fully committed and fulfilled their obligations with exception at some time, and 16% stated that the war broke out which caused the expatriates to pull out of South Sudan and at times salaries and paddy payments were delayed by the government. On the other hand, 27% of the respondents stated that National Development Corporation was considered as a political engineered agency and due to insecurity was unable to fulfill its mandate.

The issue had not been addressed well by the respondents although the majority of them mentioned that war had affected the prospects of the Project.

Figure No. 4: Partners did not fulfill obligations



7. Discussion

The respondents concluded that the reasons for the variation in the annual yield was due to lack of fertilizers in Aweil Rice Scheme. According to Dhal (1997), the main challenges to the growth and development of agricultural sector were: Increasing productivity and incomes of South Sudan's producers by improving the technology of production; providing support services; and improving the policy and institutional environment, as this execution will enhance the incomes of urban dwellers so that they can provide a competitive market for the agricultural produce. Later it will have to establish a pluralistic and participatory extension system with the aim of developing demand driven and competitive services and creating an environment conducive to development that recognizes and outlines the roles of the Public and Private sectors in providing agricultural services and input delivery services, in an effective and sustainable manner.

If the above is seen in the ground then it has created an enabling environment for the private sector to invest more in agro-processing and value addition, establishing viable rural financial services to support agricultural production and productivity enhancement and processing, contributing to the attainment of food and nutrition security for all South Sudanese primarily through increasing food availability and reducing the real cost of food for net buyers of food and Developing appropriate mechanization policies and programmes to overcome labour shortages while ensuring that agricultural development remains pro-poor.

The study has proposed the strategies for addressing problems on the production of Aweil Rice Scheme. Moreover, the management was strong due to Government involvement in management. NBS (2012) noted that the farming practice in most parts of South Sudan is subsistence farming. Subsistence agriculture is self-sufficiency in which the farmers focus on growing enough food to feed themselves and their families. On the other hand, the typical subsistence farm has a range of crops along with either pigs/chickens and bee-keeping or some livestock/animals needed by the family to feed and clothe themselves during the year.

As the author continue stating, the planting decisions are made principally with an eye toward what the family will need during the coming year, and second toward market needs approximately 78% of households in the

country are engaged in agriculture and the average farm size per household is about 1.12 ha (FAO/WFP, 2013). The total cereal area harvested has gradually increased since 2008 from 853,000 ha in 2008 to 1,085,000 ha in 2012. The area harvested per capita, however, has been at the same level throughout this period since the population growth rate was almost the same as the expansion rate of the cereal area harvested.

As Davies (1991) noted: On the other hand, there are demand-side constraints and challenges, which also frustrate the growth and development of the agricultural sector. These are some issues faced in the context of South Sudan as local civilians demanded to increase production for consumption. These include, but not limited to: 1) Lack of institutional framework for stabilization of both producer and consumer prices so as to protect producers in years of excessive production and consumers to sustain consumption when retail prices rise beyond their normal purchasing power. 2) Low income levels of urban dwellers, which constitute the main market for surpluses produced in rural areas.

8. Conclusion

Aweil Rice Development Project since its inception had a lot of hurdles such as remoteness of the area, lack of transport, no enough agricultural machinery, lack of adequate and skilled personnel, lack of fertilizers, and the wars of 1955-1972 and 1983-2005; combined together has made the Project not to fulfill the objectives it was established. Regarding the challenges of Aweil Rice Scheme there were aspects that had been mentioned for the failure of Aweil Rice Development Project. Among them were: Lack of institutional agenda for maintenance of both producer and consumer prices so as to protect producers in years of excessive production and consumers to sustain consumption when retail prices rise beyond their normal purchasing power; and low income levels of urban residents, which constitute for surpluses produced in rural areas.

The results of the findings were that there was a larger quantity of production in Aweil Rice Scheme that provided national need; surplus for export and expected productivity; and the reasons for choosing rice as the only crop to be produced instead of diversifying the production of various crops was due to suitability of land, and plenty of water.

The planned area to be cultivated was not fully utilized only a small acreage and this has made the produce to be small. The number of employees was small as well as machinery to cultivate the envisaged area of 22,000 feddans. The yield was small as there were no enough implements of agricultural machinery and proper agricultural practices.

Although Aweil Rice Development Project is a national Scheme, there is no enough support it is getting from the National Ministry of Agriculture, Forestry, Cooperatives and Rural Development. Presently, there are no enough qualified staffs and agricultural machinery. Fertilizers are not being supplied. The farmers are poor and they could not afford to cover the expenses for cultivation. The Project has not given benefits to the population of the area.

References

1. Craig, G. M. (Ed.) (1991). The Agriculture of the Sudan, Oxford University Press.
2. Davies, H. R. J. (1991). Irrigation Development Programmes: In G. M. Craig, (Ed.). The Agriculture of the Sudan, Oxford: Oxford University Press.
3. Dhal, A. M. (1997). “The Colonial Economy and the Underdevelopment of the Southern Sudan, 1899-1989,” (Unpublished Thesis), 1997.
4. NBS (2012). National Bureau of Statistics, National Baseline Household Survey 2009, Report for South Sudan, 2012.
5. Noar and Jacob (1986). “Towards A Socialist Marketing Concept-The Case of Romania,” *Journal of Marketing*, January 1986.
6. Republic of South Sudan, Ministry of Agriculture and Forestry. Agriculture Sector Policy Framework (ASPF), Juba: June 2012.
7. RSSMAFCRD (2012). The Republic of South Sudan, Ministry of Agriculture, Forestry, Cooperatives and Rural Development, Ministry of Livestock and Fisheries Industries. Comprehensive Agricultural Development Master Plan (CAMP), Final Draft, May 2015.

