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Issam A.W. Mohamed

Department of Economics, Al Neelain University, Khartoum, Sudan

2010

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MPRA Paper No. 33119, posted 2. September 2011 02:55 UTC

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The calamities of Sudan expand on daily basis. The secession of Southern Sudan has deprived the country of 25% of its total area, 24% of population, over 80% of its oil income. Moreover, it has separated with 75% of its vegetation cover and 30% of potential arable land. In addition, Sudan stands to tolerate at least 25% of its water resources. Economic situation precarious with the Darfur rebellions, the inception of Southern Kordofan's region civil strife and the inflamed complaints in its Blue Nile region. That resulted besides deprivation of oil revenues and other potentials to increased cost of national security and expenditures on additional revenues to meet such funds for securing peace. Economic crisis no longer looms over the country, but has grasped it with continuous pressures from the international society with all the consequences of boycotts, deprivations of loans and financing. The only viable economic sector is agriculture, with industry demise due to heavy taxations, expensive inputs prices, devaluation of the Sudanese currency and increases in levels of foreign currencies exchange rates. The present study reviews and updates information on the agricultural sector, not only for possible revival and compensations of the lost oil revenues but also to ensure food security for the remaining population. However, it is concluded here that under the present conditions, the agricultural sector cannot fulfill the economic requirements of the country. More economic resources are needed besides changes in the conception and application of privatization policies.

Review of the Role of Agriculture in Sudan Economy

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1. Abstract	19
2. Introduction	20
3. The Irrigated Sub-Sector	20
4. The Semi-Mechanized Rainfed Sector	20
5. Livestock Production	21
6. Forestry And Fisheries	21
7. Poverty And Agriculture.....	22
8. Food Security	22
9. Privatization Versus Policy Reforms	24
10. Conclusions	24
11. References.....	24

1. Abstract

The calamities of Sudan expand on daily basis. The secession of Southern Sudan has deprived the country of 25% of its total area, 24% of population, over 80% of its oil income. Moreover, it has separated with 75% of its vegetation cover and 30% of potential arable land. In addition, Sudan stands to tolerate at least 25% of its water resources. Economic situation precarious with the Darfur rebellions, the inception of Southern Kordofan's region civil strife and the inflamed complaints in its Blue Nile region. That resulted besides deprivation of oil revenues and other potentials to increased cost of national security and expenditures on additional revenues to meet such funds for securing peace. Economic crisis no longer looms over the country, but has grasped it with continuous pressures from the international society with all the consequences of boycotts, deprivations of loans and financing. The only viable economic sector is agriculture, with industry demise due to heavy taxations, expensive inputs prices, devaluation of the Sudanese currency and increases in levels of foreign currencies exchange rates. The present study reviews and updates information on the agricultural sector, not only for possible revival and compensations of the lost oil revenues but also to ensure food security for the remaining population. However, it is concluded here that under the present conditions, the agricultural sector cannot fulfill the economic requirements of the country. More economic resources are needed besides changes in the conception and application of privatization policies.

¹ Professor of Economics, Alneelain University, Khartoum-Sudan. P.O. Box 12910-11111.
issamawmohamed@yahoo.com

2. Introduction

Agriculture plays an important role in Sudan economy. It supplies food for the people, employment opportunities and provides the industrial sector with raw materials. Sudan is considered as one of the three countries in the world that can contribute in the international food security. Pre-secession, Sudan has cultivable arable land estimated at 86 million hectare. Post-secession that has been diminished by no less than 35% of the total. However less than 20% are utilized under three major farming sub-sectors: the irrigated, the semi-mechanized rainfed and the agro-pastoral traditional rain-fed .The agricultural sector has an important role to play in achieving food Security by increasing food production and providing employment opportunities in the rural area.

3. The irrigated Sub-sector

The area in this sector was estimated at a million hectare .It is major Schemes are Gezira, Rahad, New-Halfa and Suki. The sub-sector contributes an average of 21% of the total value of agricultural production, 100%of wheat and 25% of sorghum produced in the country. Although its contribution to sorghum production is low relative to the rain-fed sub-sector, it is more stable. In years of drought it plays an important role in meeting the consumption requirements.

4. The Semi-Mechanized Rainfed Sector

This sector was encourage in the mid of 1940s in Gadarif area and it located in Blue Nile, Sennar, Kosti, Renk and Dilling with an area of about 6 million hectare the tow main crops produce by this sector are s sorghum and sesame the crop yield depends on rainfall availability of formal credit and the level of prices in the previous year. This sector suffer from a number of limiting factors including low yield-high cost of production, shortage of formal credit and poor infrastructure (Karrar and Elhag, 2006). That is in addition to the absence of machinery services for the small farmers, poor access to marketing services, uncertain land tenure with a dominance of the traditional rain fed sector. The area of the traditional rain fed sector is about 9 million hectares located in the western, Central and southern parts of Sudan. The main crops produced by this sector are sorghum, Millet, Groundnuts, Sesame, short Staple Cotton and Gum Arabic. There are limitations of low productivity due to traditional technology, lack of rural savings and credit institutions, poor access to marketing services, inadequate infrastructure and safe water resources.

Table 1. The contribution of Agriculture in Sudan's GDP (%)

Sector	Agric.	Irrigated	Mechanized Rainfed	Traditional Rainfed	Animal wealth	Forest
Years						
2003	45.6	12.4	2.2	2.3	20.8	3
2004	44.5	11.9	2.8	7.1	19.8	2.9
2005	39.6	10.9	1.4	5.4	19.4	2.5
2006	35.9	11.5	1.2	6.9	17	2.3
2007	33.6	9.9	.9	4.7	16	2.1
2008	36.2	11	1.0	5.2	16.7	2.3
2009	36.5	10.8	1.0	5.5	17	2.2

Source: Ministry of Finance &National Economy (2010)

The table shows the fluctuations in GDP due to the international economic crises, reduction of value added for most products and high cost of production.

Table 2. Funds Allocated by Banks to the different Economic Sectors (In million SDG)

Sectors	Agric.	Industry	Exports	Domestic trade	Others	Total fund
2005	571.1	830.5	339.5	1.493.6	3.471.6	6.953.7
2006	786.1	848.5	351.3	1.821.1	6.274	10.415.3
2007	861	1314.2	254.9	2.092.4	7.657.5	12.590.1
2008	1.485.7	1.904	481.1	2.370.6	7.993.8	14.68.3
2009	1.941.6	1.207.2	365.9	2.672.2	8.797.8	14.98.7

Source: Bank of Sudan (2010)

The table above shows increasing of the allocated fund for agriculture every year.

5. Livestock Production

That is the largest single sector within traditional rainfed areas. Animal resources are estimated at 141 million heads including cattle, sheep, goats and camels. Livestock accounts for 17% of Sudan's GDP and 47% of the agricultural production as the profession and mainstay of more than 15% of the country's population (Ramcharan, 2002).

6. Forestry and Fisheries

The contribution of this sector is very low. Forestry contribution estimated at 3% in GDP (forestry area about 25%). Total fisheries production estimated at 56000 tons which was increased to 65000 tons in the year 2005 and reached 70 000 tons in the year 2009.

Table 3. Estimated Animal Recourses Numbers (2003-2009) in million heads

Years	Sheep	Goats	Cattle	Camels
2003	48	42	40	3.5
2004	49	42	40	3.7
2005	50	43	40	3.9
2006	50	43	41	4
2007	51	43	41	4
2008	51.1	43.1	41.4	4.4
2009	51.6	43.3	41.6	4.5

The table shows the number of animals. The bulk number are sheep 51 million followed by goats which is more than 43 million, 41 million of cattle and 4 million of camels.

Table 4. The Animal Products during the period (2003-2009) (in 1000 Mt. tons)

Years	Meet	Poultry	Fishes	Eggs	Milk
2003	1663	20	58	25	7387
2004	1672	22	63	28	7405
2005	1694	24	65	30	7534
2006	1721	18	57	20	7649
2007	1725	25	65	30	7695
2008	1808	27	70	32	7360
2009	1841	28	70	32	7406

Source: Ministry of Animal Wealth (2010)

The table shows increasing numbers of animal products and it shows fluctuation in milk production and this will be due to the increasing forage prices.

7. Poverty and Agriculture

The poverty is prevalent all over the country, but the measure factors were the ill-conceived development policies followed since independence which have neglected rural development from which the majority of population derive their live hood, the civil war and natural disasters (drought). The development policies were concentrated on irrigated agriculture which was supplied with most of services such as stable irrigation, research, extension, credit and other infra structure. The traditional agriculture was neglected receiving no research services, limited extension, credit, and infrastructure, basic social services in the form of education, primary health care and safe water supply. This was aggravated by marketing monopolies and absence of land reform (Wilson, Art and Tyrchniewicz, 1995). Previous effort of tackling traditional agricultural challenges through rural development projects have failed to realized the production potential in traditional agriculture. These projects which were mostly funded by foreign donors proved to be unsustainable withdrawal of foreign funded. Negligence of traditional agriculture has caused massive migration from rural areas to urban areas especially the capital Khartoum (UNCTAD, 2008). Civil wars also have claimed substantial resources which could have been utilized in the development of agriculture and other social services Shapouri and Rosen (2003). It has also limited the access to land and assets leading to loss of production and incomes. There are also the prevalence of drought cycles in the absence of coherent food security intervention has resulted in quick exhaustion of the traditional farming, coping mechanisms and consequently massive migration. Without agricultural development strategies the root causes of poverty will continue (Republic of Sudan, 2003).

Poverty alleviation program was launched in 1992 as a part of 10-years a comprehensive national strategy (1992-2000). The government has launched the interim Poverty Reduction Strategy paper (2004-2006) as a commitment to strongly address the poverty problem of the country in a sustained manner. The bad performance of the agricultural sector is the main causal of food insecurity in Sudan beside this the global phenomena like the climate change will also affect the agricultural sector. Effects of climate change on agricultural production and productivity. In particular, according to The Centre for Environment Economics and Policy in Africa, the expected climate changes in the continent, may lead to reductions of crop yields and agricultural productivity, increased incidence of pest attacks, decreased water availability, exacerbation of drought periods with occasional high floods, reduction in soil fertility with low livestock productivity (World Bank 2007). Planners and policy makers should take in consideration that the development of the agricultural sector will secure food for peoples so this sector will act as an engine for all economic sectors (Ramakrishna and Demeke 2002).

8. Food Security

Agricultural production is very important to food security. The expenditure of development programmes was reduced substantially during the 1990's. That was mainly due to the fact that the civil war in the south claimed most of the resources. Another important factor was the dwindling of external resources due to the withdrawal of most traditional donors from financing development activities.

Starting from the year 2000, the substantial increase in government revenue following the commercial exploitation of oil has enabled the government to allocate a significant and increasing amount of resources for development.

Table (5) Development expenditure in agriculture and food security programs (million Sudanese dinars)

Sector	2000	2001	2002	2003	2004	2005
Agriculture	12.0	11.5	11.4	38.8	89.5	93.8
Transport & Roads	4.7	4.0	3.8	8.8	20.1	34.7
Social sector	2.8	7.3	1.3	5.6	13.0	14.0
Water	1.9	1.5	1.1	1.3	7.2	0.7
War affected areas	2.2	2.2	3.6	4.9	9.1	-
Total	23.6	26.5	21.2	59.4	138.9	143.2
Total for all sectors	52.2	76.0	103.1	185.2	310.9	297.8
Expenditure in agriculture and food security as percent of total development expenditure	45	35	21	32	45	44

Source: Ministry of Finance and National Economy.

Table (5) shows that the expenditure in agriculture and food security programmes increased from 23.6 million S.D. in 2000 to 143.2 million S.D. in 2005. In July 2006, Sudan announced the adoption of a 5-year agricultural development plan, often referred as the agricultural revival or the green campaign. This plan is consistent with the 1996 World Food Summit Plan of Action, which urged member countries to reduce the number of undernourished by half by 2015. The plan also shows the commitment of the Sudan to allocate at least 10 percent of its public expenditure to agricultural development in fulfilment of the decision of the African Heads of state within the framework of the NEPAD initiative. The overall objective of the plan is to lay the foundation for a sustainable agricultural development capable of achieving poverty reduction, food security, export promotion, natural resources management and effective forward and backward linkage with other sectors (Abdelrahman, 1998). In the area of food security, the plan has called for the formulation of a food security strategy consisting of the following components:

1. Striking a balance in the production of the sectors to stabilizing and ensuring food production and eliminating food instability as a result of fluctuating rainfall.
2. Strengthening the strategic food reserve authority with the objective of maintaining
3. Sufficient food stocks to meet emergencies.
4. Priority will be given to vulnerable groups in the society
5. Establishing of a system for stabilization of food prices guaranteed by the state.
6. Encouraging agro-processing.

The plan represents a crucial turning point with respect to the government investment strategies in the rural sector and its priority areas are as follows:

1. Emphasis on smallholders in the different sub-sectors: rainfed, irrigated,
2. livestock, fisheries, forests, range and pastures, taking into consideration
3. Complementarities between these sectors.
4. Food security and poverty reduction programmes including water harvesting projects.
5. Capacity building at all levels of government.
6. Extension and transfer of proven technology.

9. Privatization Versus Policy Reforms

Policy reform, include improving the structure of incentives for producers and other stakeholders within the sector and related sectors, reform credit and marketing institutions, rehabilitation and strengthening coordination between national agricultural and livestock research and extension centres and complementary policies in other related sectors, namely, roads, storage, transportation, communication, education, and health. Fiscal policies, however, should include reductions of taxes and levies, price policies and removal of administrative bottlenecks (Ali, and Elbadawi, 2002). However, the reform included a structure of privatization for all public companies, corporation and most important irrigated agricultural scheme. The latter represented the backbone of the Sudanese agricultural production engine. Privatization resulted in the migration of farmers from those schemes. There was a decline in the ability and willingness of the people to participate in production activities.

10. Conclusions

The weak performance of the agricultural sector is the main causal of food insecurity in Sudan. Planners and policymakers should take in consideration that tow third of Sudanese work in the agricultural sector, so to reduce the food shortage in the rural areas, and the country as a whole is to develop the agricultural sector particularly the traditional sector which produces more than 60% of cereals. The government interventions can be in packages of researches and extension in agriculture and livestock, institutional and management reforms, credit services, market accessibility and public investment. Privatization plans should be reconsidered as it is partly dis-enhance people from participation and entrench the feelings that they being deprived of their of production resources. These are some interventions needed to overcome the poor performance of the agricultural sector.

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