



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



## Poverty Assessment Southern Sudan

Cesar Guvele, Hamid Faki, Eltahir Nur, Abdelaziz Abdelfattah and Aden Aw-Hassan



Agricultural Economics and Policy Research Centre (AEPRC),  
Agricultural Research Corporation (ARC), Sudan

# Poverty Assessment Southern Sudan

Copyright © 2012 ICARDA (International Center for Agricultural Research in the Dry Areas).

All rights reserved. ICARDA encourages fair use of this material for non-commercial purposes, with proper citation.

Citation:

Poverty Assessment Southern Sudan, Cesar Guvele, Hamid Faki, Eltahir Nur, Abdelaziz Abdelfattah and Aden Aw-Hassan. ICARDA, Aleppo, Syria. vi + 55 pp.

ISBN: 92-9127-262-0

International Center for Agricultural Research in the Dry Areas (ICARDA)

P.O.Box 5466, Aleppo, Syria

Tel: +963 21 2213433, 2213477, 2225012

E-mail: [icarda@cgiar.org](mailto:icarda@cgiar.org)

Website: [www.icarda.org](http://www.icarda.org)

The views expressed are those of the authors, and not necessarily those of ICARDA. Where trade names are used, it does not imply endorsement of, or discrimination against, any product by the Center. Maps have been used to support research data, and are not intended to show political boundaries.

**Contents**

Executive Summary ..... v

Poverty Assessment in Southern Sudan ..... 1

1. Introduction ..... 1

2. Poverty: A Conceptual Framework, Analysis, and Action Strategies ..... 1

3. Background to Poverty in Southern Sudan ..... 5

4. The Agricultural Situation in Southern Sudan ..... 18

5. Required Actions for Agricultural Development ..... 22

6. Fiscal Management and Poverty in Southern Sudan ..... 25

7. Sudan’s Banking System and Poverty in Southern Sudan ..... 29

8. Trade, Industry and Poverty in Southern Sudan ..... 29

9. Strategy Policy Recommendations ..... 30

10. Policy Action Recommendations ..... 32

11. Poverty in Selected Areas in Southern Sudan ..... 37

12. Conclusions and Recommendations ..... 51

References..... 54



## EXECUTIVE SUMMARY

### Poverty assessment in Sudan - Part 2 Southern Sudan.

#### Sudan Rural Poverty Analysis

This is Part 2 of a study, presented in three reports that detail the results of a poverty assessment and mapping project in North and Southern Sudan. The study's objective was to produce a rural poverty analysis and poverty maps for North and Southern Sudan, and based on these findings, recommend agricultural interventions that can help reduce poverty.

These findings provided an input to the IFAD Sudan Country Program 2007–2012, that takes into consideration the new constitutional changes in Sudan resulting from the peace agreements with South/East/West Sudan and to support peace, security and stability in Sudan.

- Poverty assessment in Northern Sudan – Part 1
- Poverty assessment in Southern Sudan – Part 2
- Mapping of agricultural resource potential of North and Southern Sudan – Part 3.

#### Southern Sudan Study – Key findings and recommendations

The survey estimates income poverty incidence at 99.6% in the states of Eastern Equatoria State, 88.6% in the Lakes State, and 54.0% in Central Equatoria State. The situation was especially serious in Eastern Equatoria and Lakes States. The study also showed acute shortfalls of the required caloric intake for about a third of both Eastern Equatoria and Central Equatoria States. Some 60% of the population in Lakes State faces a shortfall in the required daily caloric food intake.

This is an indication of deep poverty among a sizeable portion of the population. Lakes State had the lowest per capita income from both agricultural and non-agricultural sources. In all states, poverty was lower when expenditure estimates were used than when income estimates were used. This is a common feature in poverty analysis, and it is generally believed that expenditures are more easily recalled than incomes, but the ranking of relative poverty by province did not change.

To address this acute situation a set of 14 recommendations is proposed. The government will need to implement a long-term poverty reduction strategy that takes a broad perspective – focusing on strengthening its institutions, developing and implementing policies and legislation, investing in related areas of research and infrastructure to link rural communities to economic centers building capacity, systems, and structures for delivering services in the areas of health, education, and clean water. Actions for donors and other partners such as the private sector are also specified.

#### Key findings of the assessment: General state of the economy and agriculture

Sudan's economic structure has undergone a major shift over the past two decades (DTIS 2008), the main drivers of this change are the discovery of oil in the early 2000s and the expansion in services dominated by telecommunications, transport, and construction.

Agriculture used to be the leading economic sector, forming typically more than 40% of GDP, but has lost much ground with a drop of its GDP share to 33% in 2007. A more dramatic trend has been the deterioration in the contribution of agriculture to the country's exports, declining to some 3% in 2007 down from an average of 74% in the 1996–1998 period. Both the relative share and the absolute value of agricultural exports has declined. Data from the Central Bank of Sudan reveals an annual trend value of \$71,500.

Both income poverty and general human poverty are concerns for North and Southern Sudan. There is considerable deprivation in education and health, and poor households are particularly disadvantaged. Yet, despite the current fragile situation of Sudan's agriculture, this study found that the countries have enormous potential to raise crop yields by bridging at least part of its current 'yield gaps' – between actual and potential food production.

These vary from 46% to as high as 566% between on-farm trials and prevailing commercial productivity. Irrigated crops can be improved by margins ranging from about 50% to > 140%. Even higher yield potential have been identified for rainfed crops – where potential margins ranged from twofold to over fivefold.

Prerequisites for achieving these levels of development and macro-economic stability require an ambitious development plan that includes: creation of a sound financial system and an efficient federal system through more decentralization, coupled with adequate financial and technical resources and participatory mechanisms, and the just income and wealth distribution.

A targeting procedure conducive to poverty reduction in the Sudan is proposed in a chart (see the recommendation at the end of the Northern Sudan report), which suggests priority agricultural interventions in the 10 states with both highest income poverty and human poverty levels.

### **Northern Sudan assessment: Key findings and recommendations (Part 1)**

The results of the Northern Sudan Poverty Assessment show higher rural than urban poverty, in the six regions studied. This rural–urban disparity was mainly due to the rural–urban differences in food compositions and food prices. However, in absolute terms the number of rural poor was greater than of urban poor. Higher poverty incidence in rural areas is a due to chronic low productivity and low income in rural areas.

### **Mapping of agricultural resource potential of North and Southern Sudan (Part 3)**

This section provides detailed maps of different agro-ecological, climatic, and soil indices. These have been combined into agricultural resource potential indices.



## POVERTY ASSESSMENT IN SOUTHERN SUDAN

Cesar Guvele, Hamid Faki, Eltahir Nur, Abdelaziz Abdelfattah<sup>1</sup>  
and Aden Aw-Hassan

Agricultural Economics and Policy Research Centre (AEPRC), Agricultural Research  
Corporation (ARC), Sudan  
The Centre for Agricultural Research in the Dry Areas (ICARDA)

### 1. INTRODUCTION

This is the report on poverty assessment in Southern Sudan; a twin to that produced for Northern Sudan. Some differences, however, exist. Due to scanty information on Southern Sudan in general, and on quantitative estimates on poverty in particular, empirical estimates on poverty there are somewhat limited. However, a widely agreed-upon statement is that poverty in the south is far more widespread than in the north despite the richer natural endowments in the former. This is largely attributed to the long-term civil conflict in the south that wiped out basic infrastructure, retarded development, and jeopardized livelihoods.

However, the report while focusing in the first part on compiling information on poverty-related aspects in the south from available literature, later provides quantitative poverty estimates in limited selected areas. The estimates are based on a field survey conducted in three selected states and provide empirical figures on the incidence, depth, and severity of poverty. Yet, since the analysis is confined to a small sample and the conduct of the survey faced many logistical bottlenecks given the situation there, the figures are only indicative of the poverty, although they represent a good step in assessing poverty.

### 2. POVERTY: A CONCEPTUAL FRAMEWORK, ANALYSIS, AND ACTION STRATEGIES

*Better Aid for a Better Future* [Commonwealth of Australia (CoA), 1997] states that “mass poverty is the single most important economic and social issue on our planet today”. It strongly recommends “assisting developing countries to reduce poverty and achieve sustainable development”. This conceptual framework will provide a working definition of poverty and state why we should care about it; describe a strategy to deal with it; emphasize the need for a robust analysis of poverty to deal with it effectively; and lay down an action package. With this conceptual framework, the literature on poverty in Southern Sudan is reviewed.

#### 2.1 Who are the poor and why care?

Poverty is the greatest challenge of our time [Government of Norway (GoN), 2002]. Poverty is a complex and multidimensional concept, it is no longer just about income and consumption-based measures. It now includes many components such as social indicators, the environment, gender, accountability, and vulnerability issues (CoA, 1997). Poverty is the lack of freedom to meet one’s basic needs and those of one’s family (GoN, 2002). Therefore, the poor are defined as those who suffer a level of deprivation such that they are unable to meet minimum standards of wellbeing. Critical aspects of wellbeing include basic necessities of food, water, shelter, and clothing; acceptable levels of health and education services; accountability of state institutions and civil society organizations; and preparedness to deal with vulnerability to adverse shocks. Analysis of poverty often concentrates on material issues such as income, assets, and social indicators. However, direct poverty-targeted interventions should consider all elements of poverty (CoA, 1997).

There is need to care about poverty because “hunger, disease and vulnerability are today the fate of 1.2 billion people living in absolute poverty. The profound gap between the rich and the poor is making the world more insecure. Social need and injustice are indissolubly linked with challenges in areas such as peace and security, democracy and good governance, human rights and the environment” (GoN, 2002). There is need to care about poverty because, above all else, poverty now and in the future is an abuse of human dignity and right.

---

<sup>1</sup> The assistance provided by Dr George Leju, Dr Scopas Dima, and Elijah Ibrahim Luak in conducting this study is highly appreciated.

## **2.2 Poverty strategy**

An effective poverty strategy should be based on strengthening frameworks for sustainable and inclusive economic growth that will benefit the poor; supporting interventions that enable the poor to increase their productivity; encouraging governments, institutions, and donors to be more accountable to the poor; and reducing the vulnerability of the poor (Carroll, devnet.anu.edu.au, 2008).

## **2.3 Economic growth**

Economic growth can make significant contributions to poverty reduction. Many studies illustrate a strong correlation between economic growth and poverty reduction. For example, between 1987 and 1998 the number of people living in extreme poverty in the East Asia and Pacific region was reduced by over 30% (from over 400 million to around 280 million people) (World Bank, 2001). Over the same period, GNP per capita in the region almost doubled, from less than US\$600 to almost US\$1200 (World Bank, 2000). In the world as a whole, growth in consumption by the poorest fifth of the world's population has tracked economic growth in a one-to-one relationship (Carroll, devnet.anu.edu.au, 2008; Dollar and Kraay, [www.worldbank.org/research](http://www.worldbank.org/research)).

Effective macroeconomic policy and sound governance are crucial to sustainable economic growth. To be most effective in reducing poverty, economic growth should not just be growth, but 'inclusive' or 'pro-poor' growth. Sustainable and inclusive economic growth can be strengthened by sound macroeconomic policies, especially avoiding excessive debt and inflation; pro-poor policies so that growth benefits the poor (such as an adequate and equitable taxation system, and government programs that effectively target the poor); taking full advantage of trade and market liberalization; and providing essential economic and social infrastructure, with particular attention to the needs of poor communities (CoA 2001; Carroll, devnet.anu.edu.au, 2008).

Actions can be taken to ensure that markets work for poor people but this requires a good understanding of the policies, institutions, history, and geography of countries that affect growth and poverty reduction. For example, low-inflation growth policies are considered to be particularly beneficial for the poor. Good governance and establishing the rule of law are critical to increase productivity through confident individual trust of ownership of productive resources.

## **2.4 Productivity**

The poor work hard to protect their livelihoods but are often trapped in poverty because they lack opportunities to improve their wellbeing. Such opportunities can be created by improving their access to resources, capital, and markets. Hence, needs to be addressed at the microeconomic and macroeconomic level are ensuring that the poor have access to key productive assets, such as land and credit; investing in human capital such as health, maternity and child care, education, training, and agricultural technology transfer; empowering women so they can contribute and benefit from development; and investing in programs aimed at lifting children out of poverty" (CoA, 2001; Carroll, devnet.anu.edu.au, 2008).

## **2.5 Accountability**

Supporting fundamental elements of good governance, such as social norms and legal systems that respect contract and property rights, provide a solid foundation on which to implement activities aimed at poverty reduction. The poor need to be empowered to negotiate their interests with the private sector, government, and non government organizations, and to have greater ownership of poverty reduction programs. Governments, institutions, and donors can become more accountable to the poor through making public services and governance accessible to poor; removing barriers to participation in decision making by the poor; developing a more effective, efficient, and transparent administration; strengthening law and justice, human rights, democratic institutions, and civil society; and taking account of disadvantaged groups in society (CoA, 2001; Carroll, devnet.anu.edu.au, 2008).

## **2.6 Vulnerability**

The poor are particularly affected by shocks such as illness, conflict, drought, environmental degradation, and economic crisis. Because of their minimal assets, low income and lack of power, they have less

capacity than other groups to cope with crises. Vulnerability can be addressed by minimizing the possibility of conflict, and restoring basic needs during and after conflict; avoiding social exclusion; investing in sustainable resource use so as to avoid natural or human catastrophes; supporting victims of disasters; and comprehensive social support mechanisms in times of crisis, (CoA, 2001; Carroll, devnet.anu.edu.au, 2008).

### **2.7 Sub-sector linkages with anti-poverty policies**

There are strong linkages between poverty and good governance, education, health, infrastructure, and rural development; and between poverty and the environment. Poverty, like any other social phenomena, is always gendered: men and women are affected differently..

The key elements of good governance – improvement of economic and financial management, strengthened law and justice, increased public sector effectiveness, and development of civil society – contribute directly to poverty reduction. Education helps build human capital. It enables the poor to contribute to and share in the benefits of economic growth. Access to health care, good nutrition, clean water, and adequate sanitation are essential in reducing poverty and improving economic growth. The majority of the poor people live in rural areas. Rural development should aim to create opportunities for the rural poor to generate income and improve their livelihoods. Essential infrastructure, such as water supply and sanitation, transport and communications, is fundamental to poverty reduction as it contributes to a higher quality of life and promotes economic activity and increased incomes. Poor people often live in areas with limited natural resources or where the environment is already badly degraded. The health of the poor is affected by pollution and unsanitary living conditions, and their livelihoods are affected by deforestation, soil erosion, and environmental degradation. Improving development outcomes for women is essential for sustainable poverty reduction. They are generally less educated, less healthy, and subjected to more violence and human rights abuses than men. Because women play critical social and economic roles, gender activities that invest in women also result in greater and more sustainable economic growth.

### **2.8 Analyzing poverty**

Actions to tackle poverty should be based on a thorough poverty analysis. There is no point in focusing on poverty if there is not an understanding of the poor: who they are, where they are located, and why they are poor. Such analysis must go further and include an assessment of the most effective strategy given the nature of poverty in the specific location (e.g. state and county); an understanding of the types of action that can be effective in reducing poverty and the priority for these actions. A poverty analysis must clearly reflect the fact that complex choices are required about how to proceed (CoA, 2001). The need for robust analysis in Sudan is stated very clearly by Dr John Garang (Box 1).

## Box 1: Need for analysis and good data in Sudan

### Foreword to NSCSE and UNICEF (2004)

On the threshold of peace, the people of the Sudan, particularly the war-affected communities, face formidable social problems but tremendous opportunities. The real test in the post-conflict period is how to devote our efforts to address these social problems as one of our commitments that we have set for ourselves during the liberation struggle and to join the international community in its war against poverty and deprivation.

An accurate description of the scale of these social problems – and the resources needed to tackle them – is a prerequisite for managing expectations and development in the post-conflict Sudan. Until now, we only knew we had a mountain to climb. This publication produced by the New Sudan Centre for Statistics and Evaluation, which I am delighted to recommend to you, gives us for the first time, a map of that mountain. Some of the statistics provided in this publication are appalling. Others merely confirm what we already suspected.

Children are always ill, with malaria and diarrhoea as their biggest killers. One out of every four newborns will die before reaching age five. Alarmingly one out of every five children suffers from moderate or severe wasting. More than one million kids, particularly girls, are out of school and only one out of every 50 children attending school finishes primary education, and this is even worse among girls. The chance of a woman dying in pregnancy or childbirth is one in nine.

These statistics clearly highlight the enormous social problems faced by the war-affected communities and pose real and strenuous challenges. Armed with credible and well-presented statistics and analysis, the Sudan People Liberation Movement (SPLM) and its partners in development look forward to an era of unprecedented progress and development for a brighter future. In addition we will scale up our support for capacity building in statistics in order to assess our efforts and commitments in addressing these social problems as well as knowing how far we have come and how far we have to go to meet the Millennium Development Goals.

Dr John Garang de Mabior  
Chairman and C-in-C, [Commander in Chief] SPLM/A

*Source: New Sudan Center for Statistics and Evaluation and UNICEF (May 2004)*

Most importantly, the analysis should identify the factors contributing to poverty. These could be: economic/income; social/institutional; and environmental/external (Carroll, devnet.anu.edu.au, 2008).

### 2.9 Poverty principles for action

There are four key principles through which the effectiveness of poverty interventions can be maximized (Carroll, devnet.anu.edu.au, 2008).

- The rationale (and/or assumptions) behind choices between activities, including whether their impact on poverty is direct or indirect, is spelled out so that it is not lost as the activity proceeds;
- Partnership and ownership are essential for effective poverty reduction activities. Participation – by local government, the private sector, civil society, and the poor – is also an essential element in activity development and implementation;
- Activities should be informed by relevant poverty data; and implemented in the light of analysis of this data; and
- Timeframes and risk management are important. Poverty reduction outcomes accrue largely in the medium-to-long term. Poverty reduction activities are also inherently risky and resource intensive. It is therefore critical that these activities are thought of not as discrete interventions in themselves but as part of a longer term program.

### 3. BACKGROUND TO POVERTY IN SOUTHERN SUDAN

Southern Sudan covers an area of about 640 000 km<sup>2</sup> and includes stretches of tropical and equatorial forests, wetlands including the Sudd swamps, savannah, and mountains. It is entirely within the Nile basin and shares borders with four countries. Southern Sudan is culturally, geographically, and religiously diverse and well endowed with natural resources, including water, wildlife, forest, oil and minerals. Since the independence of Sudan in 1956, Southern Sudan has been a battleground for two civil wars (1955–1972 and 1982–2005) that resulted in egregious suffering, loss of life and opportunities, widespread poverty, and food insecurity (NSCSE and UNICEF, 2004). The prevalence of poverty in Southern Sudan is described in Box 2, which illustrates a clear picture of the dimension of poverty at all levels.

Since independence, the Sudanese people have consistently endured both repression and poverty. Other than brief periods of democracy (1956–1957, 1965–1968, and 1986–1988), Sudan has suffered under repressive regimes. According to the Polity IV index, which is a measure of a state's regime type, Sudan has been a solid non-democracy in all but 13 years during 1956–2002 (Jagers and Gurr, 1995).

Poverty often walks hand-in-hand with repression. With a GDP per capita of less than US\$300 at the beginning of the war and a current GDP per capita of US\$433, Sudan is among the top 10% of poorest countries in the world (CIA Factbook, 2005). While not the primary cause of internal conflict, poverty could be a major factor in fueling the flames of rebellion while making civilians the biggest victims.

The Comprehensive Peace Agreement (CPA) signed on 9 January 2005 marked a critical juncture for Sudan, and opened an unprecedented window of opportunity to turn the devastation of over 20 years of civil war, displacement and underdevelopment into a new era of peace and prosperity (UNDP, 2006).

#### Box 2: Poverty in Southern Sudan

##### **Southern Sudan locked in dependency syndrome**

Story by BADRU MULUMBA, NATION CORRESPONDENT

Publication Date: 2008/05/06 Southern Sudan Nation, JUBA, Monday, May 07, 2008

Mr Kuol Athain, Southern Sudan's Minister of Finance and Economic Planning swivels in a leather chair behind a shiny mahogany desk, in an air-conditioned office that has taken the government three years to renovate, and answers why the Government of Southern Sudan won't construct housing estates to solve a housing crisis.

"The private sector will do that," he says.

What if they don't come? I ask.

"They will come," he says. "We are now working on investment laws to ensure that they come."

But Southern Sudan is not short of investors.

The scent of oil has brought with it murky investors out for a killing, exploiting the absence of systems. Consider the \$25 million (Sh1.5 billion) hospital built in a jungle without people, using prefabs with a two-three year warranty. Or consider the \$76 million (Sh4.7 billion) spent on 153 vehicles, mostly Land Cruisers, according to lawmakers.

Despite billions in contracts, the region is not short of misery. Misery is in schools, and it's in rundown hospitals. It manifests itself in the infrastructure, and it is right behind Mr Athain's office. Here, heavy four-wheel-drive cars strive for parking space next to dingy, makeshift eateries at the edge of a dusty road across a spiraling three-year-old internally displaced people's camp.

"We are beginning from zero," Regional Cooperation Minister Barnaba Marial Benjamin says. The health infrastructure is a mess. At Juba Teaching Hospital, the region's elite health institution, patients wait days on the verandah for treatment. Appalling health indicators include having the world's highest maternal mortality rate.

## Box 2: (Continued)

Education is bad too. Schools are crumbling, such that even low earners send relatives to study in Uganda and Kenya. Education indicators are the world's lowest: one per cent girls and two per cent boys complete primary school.

Civil service is pathetic

And, by the Public Service Minister Awut Deng's own account, the civil service is pathetic.

"You have extremely weak capacity after the war," says Mr Laurence Clarke, the Southern Sudan World Bank Manager. "Some of the professionals are killed in the war, some are displaced by war, while others flee.

That's not something you underestimate." To Mr Luka Monoja, Southern Sudan's Cabinet Affairs Minister, the civil service problem dates back to the 1940s in Gondokoro. In East Africa, for instance, the Kaisers of Germany sought treaties with local chiefs in Tanganyika, Rwanda and Burundi, forcing Britain, which had only dealt with the Sultans, to seek similar treaties with the indigenous local chiefs. Likewise, power-sharing in Sudan was limited to the Arabs.

"Even when the indigenous populations were hostile, some form of agreement was reached," Mr Monoja says of other areas where the colonizing authorities sought to transfer skills to the local people.

"In southern Sudan, nobody wanted to deal with them (the local people)," Mr Monoja says.

It is in view of these challenges that the Finance Minister says he needs \$11.55 billion from the international community.

"We are asking our friends in the international community to help us raise this money," Mr Athain says. Indeed, for Southern Sudan, an outpouring of international goodwill exists. South Africa and Kenya have helped train the civil service; Ethiopia has provided 400 scholarships to Southern Sudanese while Uganda is charging southern Sudanese local rates at its universities.

Gabon is offering oil-drilling technical help, and international donors have given \$231 million for reconstruction in the past three years, besides funding humanitarian issues such as emergency disease outbreaks and floods. What would more money do? Mr Athain cites resettlement of people and rebuilding of infrastructure, for instance.

Not everyone agrees.

"In the end, money is just part of the problem," says Mr Clarke.

In fact, southern Sudan is not short of money. In 2007, oil money nearly reached \$2 billion (Sh124 billion). And thanks to rising international oil prices, the oil money remittance to southern Sudan was \$237 million (Sh14.6 billion) for January 2008, which is the latest figure available from Khartoum.

Should this trend continue, then the region is on track to earn nearly \$2.8 billion in 2008.

Compare that with Liberia's \$183 million 2007 budget.

That Liberian President Johnson Sirleaf last year refused to borrow money until anticorruption and financial discipline was cultivated is a lesson Southern Sudan's President Salva Kiir may want to borrow.

Southern Sudan needs less money, not more. Without a functioning auditing system, any money is a wash down the drain.

Corruption is apparently less, but survey by one magazine showed that most people think nine out of every 10 government workers are corrupt. Part of the problem could be the difference between the salaries and allowances top civil servants earn and those of their juniors, which gives the impression that some people are better off because they are corrupt. In the past six months alone, three Speakers of regional parliaments have been accused of pocketing MPs' allowances.

## Box 2: (Continued)

They deny the allegations. With good accountability, the region should save and reinvest oil money in order to make more money. But for now, the desire to move from oil to other sectors is mostly talk, and little action. The Southern Sudan government claims having the potential to supply the entire Africa with food, but the region still relies on food imports, whose prices are ever rising. The government also claims that it can produce 2000MW of power from the River Nile, but save for 5 MW power-driven generators powering a two-kilometer stretch, darkness descends on the region every day. The government also claims enough cement deposits for reconstruction and export, but a bag of cement costs \$30 (Sh1860) nearly three times the price in neighboring countries because it is imported.

The World Bank estimates a classroom block construction in Southern Sudan at \$250,000, compared to \$80,000 in Angola and \$60,000 in Liberia. "I realize it's a large difference between the two — we know what is reasonable for post conflict countries," Mr Clarke says.

"The-whole development effort is geared towards reducing the amount [of \$250,000]."

A cement factory

Why doesn't the government build a cement factory?

"We would end up controlling the prices and squeezing out the private sector," says Athain.

How about building a housing estate? Mr Athain gives the same private sector story.

But so long as construction material is imported, accommodation prices will remain obscene, as high as \$300 (Sh18,600) a night in a tent. Officials as junior as five ranks below a minister spend up to \$100,000 annually on hotel tents. And ministers charter planes — because roads don't exist — for \$10,000 each.

Mr Athain might have an impressive grasp of the role of the private sector, but can a region so crippled and thought insecure put all its hopes in foreign investors and donors?

The solution to Southern Sudan's problems lies within. Not with donors or investors from outside, and not necessarily with solutions that have worked elsewhere.

While for instance, in Liberia and Angola ex-combatants due for demobilization numbered between 40,000 and 90,000. In southern Sudan, nearly everyone says they fought at one point.

The only place for employment right now is the public service.

How do you balance highly educated persons, but who didn't physically fight, and mostly uneducated fighters on a payroll?

Easily retrenched

The fighters cannot be easily retrenched, however, incompetent.

"Unemployment can be a nightmare and you run the risk of running into a new conflict," says Mr Clarke.

The alternative, as government technocrats say, is the private sector.

"If there are projects, if there are investors coming here, then everybody would be engaged," Mr Athain says. "Nobody would be thinking about war."

The feeling that the region is not yet stable, and won't be for a while, means that the foreign investors are not going to come any time soon.

Meanwhile, the local population lacks entrepreneur skills required for reconstruction. Indeed, the World Bank requires construction firms to have at least five years' experience, technically knocking out locals.

Southern Sudan's problem is how to use the military personnel productively. In Khartoum, for instance, the government runs military hospitals, a telecommunications firm, military car industries, and construction firms.

"We have given them a contract for a road," says Mr Athain.

That looks like the exception. But Athain is mostly waiting for donors and foreign investors to grow the private sector.

Meanwhile, the people grumble.

Accordingly, there are significant challenges ahead for Southern Sudan. The government has to establish itself and develop and implement policies and legislation, as well as build new capacities, systems and structures. There are also immense post-war recovery challenges, including the return and reintegration of Internally Displaced Persons (IDPs) and refugees and the reintegration of ex-combatants, in a context in which there is continued existence of militia groups as well as a proliferation of small arms. Additionally, the promotion of human security through establishment of basic rule of law and law enforcement must be complemented with reconciliation between fractured and dislocated southern communities affected by generations of conflict (UNDP, 2006).

The government's stringent economic policy and the poor state of social service delivery contributed to meager outcomes in the areas of poverty reduction and human development. While new flows of revenues from the rapidly growing oil industry and favorable weather helped to improve the broad macroeconomic situation, poverty (according to skilled observers) has shown no signs of abating (World Bank 2003).

The situation in Southern Sudan is characterized by a fragile peace, a lack of infrastructure and basic services, a depressed economy, and nascent governance and rule of law structures with significant and urgent capacity-building needs. Translating the CPA into actions and programs that will facilitate sustainable post-conflict recovery, governance, and delivery of services is an immense challenge to the Government of Southern Sudan (GOSS).

The incidence of poverty is very high and development in Southern Sudan remains amongst the lowest in the world, as measured by all indicators. Livelihoods are largely at subsistence level and economic development remains depressed. Public services are virtually non-existent, leaving people isolated from access to basic services.

Data on economic activity are scarce, but there is every indication to suggest that the incidence of poverty is very high. The primary drivers of poverty in Southern Sudan are well explained in terms of conflicts, displacement, depletion of assets, and limited access to social services. Very low levels of income and purchasing power, alongside the disruption associated with conflict and very limited economic infrastructure, have inhibited economic activity and market development. Many households have few or no assets, while even those with assets have often been unable to leverage their own resources to participate in the market. The lack of markets is symptomatic of underlying economic underdevelopment, exemplified by institutional uncertainty.

There is no single reliable estimate of poverty in Sudan, but there is consensus among Sudanese analysts that poverty exceeds 50% (World Bank 2003; NSCSE and UNICEF, 2004). It is estimated that the poverty rate in the Southern Sudan is about 90%, and at a similar level in the Three Areas (Abyei, South Kordofan and Blue Nile) (UNDP, 2006). Estimated poverty rates remain high with significant regional variations due to significant variations in the levels of services deliverables.

Though it almost impossible to determine the level of poverty in Southern Sudan at this time, (NSCSE and UNICEF, 2004) have done an excellent job setting up a baseline for some very telling social indicators about poverty in Southern Sudan. The indicators which they assessed in areas that were under the control of the SPLA/M might also be relevant throughout Southern Sudan. They are: population, primary education, child and maternal mortality, children and women health, water and sanitation, nutrition, child rights, and the economy. Their assessment of these is summarized in the following sections.

### **3.1 Population**

The population of Southern Sudan was estimated to be 7.5 million in 2003, and was expected to grow by as much as 4.5 million as a result of returnees coming back (both refugees and IDPs) and the high natural population growth (almost 3% a year). The massive return of such large numbers of people in a very short time was expected to drain resources and overwhelm the nascent logistic capacities of the government to provide care. Given the euphoria of the CPA, many Southern Sudanese were expected to demand a lot of what they had missed sooner than it is possible to deliver.



The population is among the youngest in the world. At 21%, it equals the highest proportion of under-fives of any country. The fertility rate is high (the total fertility rate is at 6.7) and a high crude birth rate (50.5 per 1000 people). Much of the adult population was consumed by the protracted civil war and famines.

### **3.2 Primary education**

Children in Southern Sudan have the least access to primary education in the world. Their net enrolment ratio in primary school (20%) is the worst in the world and second to the latest official figures for Afghanistan in terms of gross enrolment ratio in primary school (23%). It also has the lowest ratio of female to male enrolment (35%). Only one of every five children of school age is in class. And around three times more boys than girls are at school.

Southern Sudan has the lowest rate of primary school completion (2%) worldwide. Only Afghanistan under the Taliban performed worse in terms of female primary completion rate (0.8%) compared with male primary completion rate (3%). Only one of every 50 children finishes primary school. With an estimated population of 7.5 million, only 500 girls finish primary school each year while 2000 boys finish. The share of cohort reaching grade 5 (28%) is the least in the world. Southern Sudan is second only to Niger in adult literacy rate (24%). Adult female illiteracy rate is 88%. Three of every four adults are illiterate and only one of every 10 female adults is literate.

The teacher–pupil ratio (one teacher for every 33 pupils) is better than other countries in the region but far less than that of the rest of Sudan. However, only 7% of the teachers received at least one year of pre-service training. Of the 93% of teachers having received less than a year of training, half (50%) had no training at all and the other half have received from two weeks to a few months of in-service training. So the ‘teacher’–pupil ratio does not reflect this reality and may be misleading. The very precarious position of women is also reflected by the fact that only 7% of the teachers are female.

Only 1600 schools exist for the estimated 1.6 million children of school age. Only 10% of the classrooms are in permanent buildings; and 80% of the children have no bench to sit on and only one-third of the schools have access to latrines. Half have access to safe clean water. The education system is also confronted by the fact that all the schools and teachers in the garrison towns were from the Arabic pattern. The switch from Arabic to English pattern further complicates the desire to deliver quality education. Teachers need to learn English to be able to deliver subject content in English. Books and syllabi need to be replaced. Children from the Arabic pattern need to catch up with English. With so many competing needs for annual budgets in Southern Sudan, GOSS cannot afford to have two school systems – Arabic and English. The appropriate thing to do is to teach these languages in a unified school system.

### **3.3 Child and maternal mortality**

Southern Sudan has high rates of infant mortality (150 per 1000 live births), under five mortality (250 per 1000) and under five deaths as a percentage of total deaths (57%). One of every four newborns will die in Southern Sudan before reaching the age of five. Children in Southern Sudan are three times more likely to die than those in the rest of the Sudan before reaching five. However, these figures would undoubtedly be even worse if it were not for the efforts of humanitarian agencies and particularly, the Operation Lifeline Sudan (OLS) consortium. OLS provided and coordinated massive humanitarian assistance to Southern Sudan during the war and persistent famines. The maternal mortality ratio in Southern Sudan is almost three times that of the rest Sudan. The lifetime risk of dying in pregnancy or childbirth (one in nine) is four times that of the rest of Sudan.

### **3.4 Children’s and women’s health**

The prevalence of diarrhea among children under five in Southern Sudan (45%) is exceptionally high and the prevalence of acute respiratory infection (30%) and fever (malaria) (61%) are the highest rates among peer countries. The prevalence of malaria in Southern Sudan is almost four times higher than the level in the rest of Sudan.

The percentage of pregnant women immunized against tetanus in Southern Sudan (16%) is the lowest in the world as is the proportion of one-year-old children immunized against DPT (diphtheria, pertussis

(whooping cough) and tetanus)(18%) and Tuberculosis (21%). The level of immunization against measles in Southern Sudan (25%) is among the lowest rates in the world and less than half of the level in the rest of Sudan (67%).

The proportion of births attended by skilled health staff (5%) is not only the lowest in the world but it is almost 13 times less than the level in the rest of Sudan. The antenatal care coverage (16%) and contraceptive prevalence rate (< 1%) are the lowest in the world. The maternal mortality rate is very high as a result. The limited access to health services is highlighted by the fact that there is one medical doctor for every 100 000 persons in Southern Sudan. Despite the absence of any public sector social programs, OLS guaranteed a minimum level of health services and organized annual polio campaigns which covered all of the SPLM/A controlled areas. Without this coverage, the level of deaths in Southern Sudan during the civil war may well have been much higher.

### 3.5 Water and sanitation

The level of access to an improved water source (27%) and sanitation facilities (16%) are low compared to the peer country groups and are respectively more than three and four times lower than the level of access in the rest of Sudan. Given the very high level of water-borne diseases in Southern Sudan (e.g. cholera, typhoid, and diarrhea), the absence of clean water and sanitation cannot be emphasized enough. Most of the water used in Juba, for example, is lifted directly from the River Nile by pumps into water tankers and distributed directly to homes without any kind of treatment. This is the water used by most households for everything, including drinking. With the very appalling waste disposal system in Juba (most garbage is disposed on Juba-Yei road; Plates 1–6), the potential for epidemic explosion is very high. A lot of this openly disposed material is washed back into the river and stream systems, and can be seen floating on the River Nile.

### 3.6 Food consumption and the poverty nexus in Southern Sudan

Poverty often manifests itself in consumption. This encompasses nutrition, frequency of meals, dietary diversity, aftershock coping mechanisms, access to food markets, food sources, income sources, and expenditure patterns.

#### 3.6.1 Nutrition

The level of under five children suffering from wasting (21.5%) is the highest in the world and suggests that one of every five children suffers from moderate or severe wasting. The prevalence of general malnutrition (48%) and severe malnutrition (21%) among the under-five children in Southern Sudan is almost three times higher than in the rest of Sudan. About one-third of the population did not have access to salt at all. However, of those who did, most use iodized salt, thanks to OLS. The overall level of consumption of iodized salt in Southern Sudan (40% of households) is still lower than in the surrounding countries. The level of Vitamin A supplementation among children (16%) was among the worst in the world and almost six times lower than the level in the rest of Sudan. However, the inclusion of Vitamin A in the polio campaigns has improved the rate significantly (NSCSE and UNICEF, 2004).



Plate 1: Trash in Juba



Plate 2: Trash thrown on Yei Road



Plate 3: Plastic bottles eventually find their way to the Nile River

### 3.6.2 Frequency of meals and dietary diversity

(WFP–FAO–MAF, 2007) found that, irrespective of the amount and quality of food, on average adults ate between 1.5 times (least) in Lakes and 1.9 times (most) in Upper Nile States. For children under 15, the numbers ranged from 1.9 times (least) in Lakes to 2.6 times (most) in Warrab States, (Table 1).

Table 1: Number of times household members ate per day

	Central Equatoria	Eastern Equatoria	Jonglei	Lakes	N.B. Ghazal	Unity	Upper Nile	Western Equatoria	Warrab	W.B. Ghazal
Adults	1.7	1.7	1.8	1.5	1.8	1.8	1.9	1.6	1.8	1.7
Children	2.1	2.1	2.3	1.9	2.2	2.0	2.3	2.0	2.6	2.2

Source: (WFP–FAO–MAF, 2007).

The number of times people ate in a day revealed that 31% of adults ate only once a day, 57% ate two times per day and 11% ate three times per day (WFP–FAO–MAF, 2007). Although the amount consumed in one meal by households is not known, overall the diet of the people of Southern Sudan is fairly balanced. On the average, people eat cereals 2.7 times within three days. Groundnuts, fruits and vegetables, dairy products, sugar, ghee, and wild foods are eaten more than two times in a period of three days. Fish, eggs, meat, pulses, and root crops are eaten between one and two times for the same period.

### 3.6.3 Aftershock coping mechanisms

According to their assessment, about 83% of the households in all the states of Southern Sudan experienced shortage of food in 2006. Households were unable to meet all their food needs through own production due to the small area cultivated, exacerbated by low yields. Nor were they able to purchase from the market (WFP–FAO–MAF, 2006). Such vicious circle of poverty repeats itself year by year and state by state. The way out is normally with food aid from donors. There is no question that over reliance on handout relief food comes with very high social and economic costs.

In six of the 10 states, > 72% of the households received food aid in 2006. This high percentage of food aid recipients in Southern Sudan when compared against the apparent small contribution of food aid (discussed below) as a source of food, suggests that food aid assistance is important only during very critical periods when households have exhausted their own food stocks. To cope with the shortages of food, households relied on: reducing the number of meals (reported by 18%), eating fewer meals (13%), going without meals for days (12%), eating less-preferred foods (11%), and gathering wild foods (17%) (WFP–FAO–MAF, 2006).

### 3.6.4 Access to food markets

Markets are an essential source of family livelihoods. During the war, most markets in Southern Sudan performed poorly in terms of coordination, structure, and linkages (Guvele, 2003).

#### a) Marketing coordination

Two major trading patterns were identified in Southern Sudan – inter- and intra-regional trade. Being predominantly a subsistence farming area, no specialized market channels exist for specific agricultural commodities. Livestock traders, for example, do not specialize in cattle, or goats, or sheep. There are no traders who specialize in crop-specific trading. Traders deal with any category according to their judgment of the profitability. Hence, the most meaningful way to analyze the system is to assess the flows of agricultural commodities from one area to another. This way, the region’s marketing structure can be analyzed and its efficiency assessed. Further, the different market levels and the economic factors which make the pricing systems in these market levels optimal can be described (Guvele, 2003).

The marketing system is significantly influenced by the border trade with Congo, Kenya, and Uganda, and significant volumes being handled by numerous petty traders or hawkers. What Youngblood observed

in 1983 is still true today. Increased surpluses are likely to lead to better articulated pricing systems via better organized producers, wholesalers, and retailers; resulting in several possible evolutions that can be expected to occur in such a new pricing system. The first is the emergence of collusive activity among merchants to restrict access to the local markets. The second is the negative impact of produce from well financed and established farms in East Africa, and in Northern Sudan, which might impose welfare losses on Southern Sudanese producers. Thirdly, since some technical inefficiencies may exist in the large number of low volume transactions handled by petty traders, the marketing of higher volumes will lead to a restructuring of petty trading with consequences (Guvele, 2003).

#### ***b) Structure of the marketing system***

To describe the structure of the agricultural marketing system, it is necessary to identify the principal commodity categories that move through the system, the directions of the flows, and the characteristics of the places in which the transactions occur. The two principal intra-regional trade flows are the marketing of Southern Sudanese imports and exports and the marketing of locally produced commodities. The volume of locally produced commodities traded intra-regionally appears to be small due to insecurity in some areas and the lack of inputs in most areas. Among locally produced commodities traded intra-regionally, the most important are livestock. Livestock are moved on the hoof from the floodplain regions by pastoralists and cattle traders to consumption centers like Wau, Malakal, Yambio, Yei, and Juba. As Mogga noted decades ago (1979), trade in cattle is continuous throughout the year and reaches a peak in the rainy season during April–July. Intra-regional trade primarily facilitates the marketing of exports and imports. With the exception of livestock, dry fish, tobacco, and gum Arabic, the trade within the rest of Southern Sudan involves imports from Kenya and Uganda. Links between markets serving production and consumption areas within Southern Sudan are weak (Guvele, 2003).

#### ***c) Links among the marketing centers***

There are four levels of livestock (indeed farm produce) market centers in Southern Sudan. Each can be described in terms of its frequency, or the number of times the market meets, its location, and its functions. At the first level, there are the city marketing centers of Wau, Malakal, and Juba. These markets operate daily as they are the equivalent of the traditional granaries for the urban dwellers. The second-level markets are the town markets strung along the trunk roads. These would include the market centers of Narus, Yambio, Tonj, Rumbek, Yei, Natinga, and Napotpot. These are also open on a daily basis for the same reason. At the third level of the hierarchy are the rural markets which supply and are supplied by the city and town markets. At the lowest level are the agricultural producers and the livestock owners (Guvele, 2003).

Juba, Wau, and Malakal remained the primary regional marketing centers throughout the period of civil war. Juba is geographically linked to the north by the White Nile, which gives it access to northern markets throughout the year; and during December–March, when road conditions allow travel between Juba and Khartoum. Access to Juba from Congo, Kenya, and Uganda is by road. Wau is the southern terminal of the railroad system which facilitates access to northern markets all year. Two trunk roads connect Juba and Wau. Both of these are only passable during the dry season – due mainly to poor surface and inadequate bridges. Thus, the three primary markets are effectively isolated from each other. Their separation was exacerbated by the civil war. However, each performs similar functions within the Southern Sudan marketing system (Guvele, 2003).

The city markets are the largest population centers which are mostly engaged in non-farm occupations in government, institutional, and commercial sectors. In recent years they have constituted a large segment of displaced people fleeing the insecurity and hunger in the rural areas. As primary market centers, they perform two operations. They receive and distribute imported consumption goods from neighboring countries to the second-level markets. They are also the pooling and bulking centers. Because of the export–import orientation of the economy, and the current dependence on relief programs, the primary market centers do not effectively stimulate production which could be marketed within Southern Sudan. They have instead served as relief distribution and consumption centers (Guvele, 2003).

The second level market centers are towns located on the trunk roads, which are accessible to the primary markets. They have one daily market with permanent shops and warehouses. Traders are licensed and market fees are collected from all sellers. They serve that portion of the population that is dependent on the market to meet its daily food requirements. They include towns like Narus, Yei, Yambio, Mundri, Maridi, Rumbek, and Kaya. Local markets constitute the third level in the hierarchy of markets centers. They function as retail outlets for consumption goods from the town markets and are often the point at which the farmers first sell their produce. They are often open air markets with no facilities. Unlike the town markets, local markets usually meet periodically, on different days of the week. There is an enclosure with a gate at which market fees are collected from sellers on entry. Bulking takes place for all commodities which are then transported by petty traders to the town and/or city markets (Guvele, 2003).

Overall, the inaccessibility of markets due to rivers flooding and poor road conditions during the critical months of the year, when the households expect to rely on markets for the supply of their food needs, is one of the chronic problems the people in Southern Sudan experience annually. The distance people travel to reach markets is an important indicator of whether people would be able to access food and other goods through markets. According to the ANLA 2006/7 (NSCSE and Save the Children, 2006), the average one-way distance to the market is 2.3 h. In contrast the average number of market days per week is 5.5. In addition, at least 50% of the assessed households in all states visited the market. Based on the respondents' perceptions of price trends, there was a general price increase of cereals and livestock in 2006 compared to 2005 in almost all the states. Over 61% of the respondents perceived price increases in nine out of the 10 states. Similarly, 57–95% of the respondents reported increases in price of livestock in 2006 compared to 2005. The numbers of cereal and livestock traders also increased in 2006 compared to 2005. This general increasing trend in the markets is a positive sign that could encourage producers to increase the supply of livestock and cereals and in the process encourage more producers to embrace efficient production methods and enhance food supply.

#### ***d) The border trade***

One major feature of the local market is the border trade. Local market centers along the borders meet daily. The trade is important to the Southern Sudan economy and now constitutes a major portion of Southern Sudanese imports. Southern Sudan's agricultural and rural sector has been forced to adjust to the external forces of competition unleashed by the expanding border trade with East Africa. Border trade in agricultural produce comprises about 27% of the exports from Uganda to Southern Sudan and > 70% of the imports from Southern Sudan. Uganda has generally had a more favorable informal trade balance with the neighboring countries (Guvele, 2008).

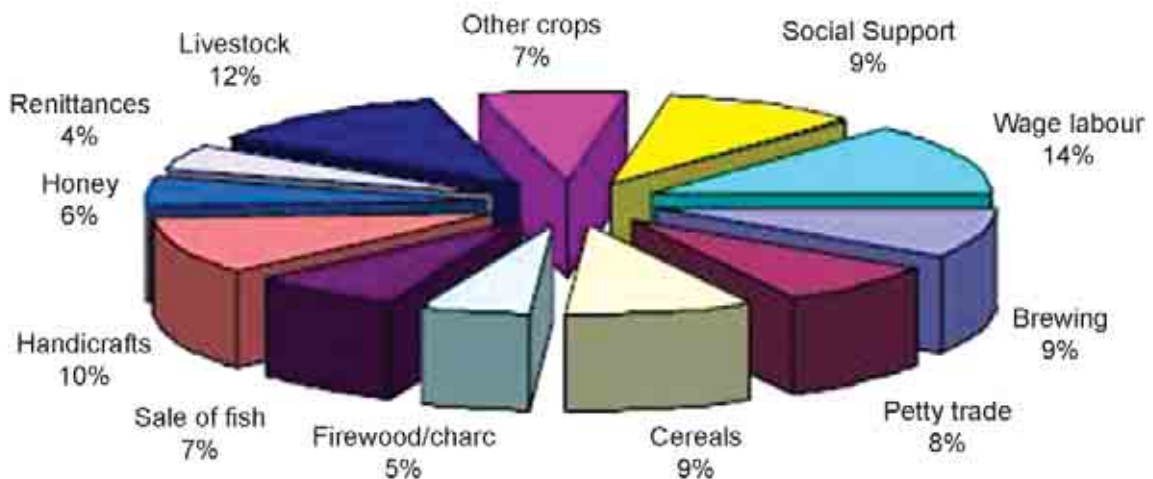
Before the CPA, cattle trade developed between Uganda and Kenya and Southern Sudan. The bulk of the meat consumed in the Arua area was from Southern Sudan. However, the terms of trade did not favor Southern Sudanese traders. Guvele (2002a) estimated marketing margins for cattle and found them to be very high. The average total gross margin was 63% for sample. The market was dominated by wholesalers and retailers, as their average shares were 36 and 14%, respectively. The contribution of the rural assembly market and producers were only 13 and 37%, respectively. High margins are indicative of a marketing system operating at high cost. The analysis also found that the average value-weight margin was very low (Guvele, 1999).

#### ***3.6.5 Food sources***

According to respondents in the (WFP–FAO–MAF, 2007) assessment, households got most of their food from: own production (53%); markets (32); barter (5%); gifts (4%); and borrowing (3%). Food aid as a source of food contributed < 1%. Labor exchange and hunting/fishing/collecting wild foods contributed 1% each. As the economy improves and more employment opportunities are created, labor exchange will be replaced by wage labor and trading in barter will be replaced by money transactions. These findings suggest the need to focus on increasing food production at the household level and improving markets as primary options for redressing the chronic food insecurity in Southern Sudan. Such a strategy might go a long a long way towards reducing poverty as it would result in the commercialization of subsistence agriculture.

### 3.6.6 Income sources

Sources of household income in Southern Sudan are not highly diversified, as most income is from farm related activities (Fig. 1). However, within the farm sector itself, the income sources are diverse. High diversity of income sources implies reduced exposure to risk. With strong rules and regulations some of the income sources with undesirable long-term impacts like hunting and charcoal burning should be discouraged (WFP–FAO–MAF, 2007).



Source: (WFP–FAO–MAF, 2007).

Figure 1. Sources of household income in Southern Sudan

### 3.6.7 Expenditures

Households spent 22% of their incomes on staple and non-staple food purchases. High dependency on staple food purchases carries a high risk of market shocks especially for poor households. Social events, shelter, and household assets take 15% each of the expenditures. And 13% was spent on clothing. The remaining 20% was spent on social services like health (11%) and education (9%).

### 3.7 Fiscal management and poverty in Southern Sudan

The GOSS is establishing a system of public financial management virtually from scratch. The former SPLM Secretariat of Finance, which managed resources of around US\$100 000, has transformed itself into a Ministry responsible for managing over US\$1.5 billion dollars annually, including significant external financing. The government has committed itself to establishing sound and transparent financial management systems to combat corruption. While some progress has been made, including the outsourcing of accounting and auditing functions and actions to address corruption, government finances are still characterized by weak management and lack of accountability (World Bank, 2007).

Budgetary management in Southern Sudan over the last three years has been a daunting task indeed. Budgetary balance in 2006 moved sharply into cash deficit due to limited spending discipline as well as oil revenue shortfalls in the second half of the year. Aggregate spending was driven by outlays on wages and operations that were roughly double the planned amounts, while capital expenditures were cut sharply. In the first half of 2007, oil revenue shortfalls continued, GOSS significantly overestimated non-oil revenue, and in the face of huge development needs, expenditure plans in the 2007 budget were significantly expanded relative to 2006. The cash reserves that could have provided cushions were largely run-down. As a result, planned investments in roads, schools, clinics, and so on were squeezed by the burgeoning payroll (World Bank, 2007).

Emerging from several decades of conflict, Southern Sudan was a region without a formal tax administration. Since 2005, the GOSS has taken steps to reestablish a structure, but there are emerging

issues regarding consistency with the Government of National Unity (GNU). The 2005 Interim National Constitution (INC) assigns responsibilities for collection of specific revenue sources to the GNU, the GOSS, and state-levels of governments. However, a recent International Monetary Fund (IMF) mission has suggested that the current tax system in Southern Sudan differs significantly from the structure outlined in the INC, and that the legal framework outlined in the CPA and INC is not in force. The GOSS collects duties based on a preexisting customs and excise tariff adopted in 2000, which differs from the current national customs law. GOSS also collects export duties on agricultural products (1%), a list of other goods (with four different rates), and re-exports of finished goods (at 30%). It collects personal income tax from Sudanese working with NGOs (at rates of 10%), and road tolls based on an excise-type tariff. State authorities within the south also collect a variety of taxes, fees, and duties (World Bank, 2007).

### **3.8 The environment**

Besides the universal environmental ills, there is one immediate environmental issue regarding Southern Sudan – POLLUTION. There are three pollution types requiring immediate attention: evening noise, air, and human. The level of noise pollution in the urban cities is among the highest in Southern Sudan. The noise mainly comes from old generators, commonly used to generate electricity in the absence of a central power supply system. These generators also emit a lot of gases into the atmosphere. Air pollution manifests itself in the form of dust and smell. Houses along the main streets experience very high levels of dust as the roads are not tarmac and the numbers of vehicles using these dusty roads is constantly on the rise, thanks to the sudden burst of conspicuous consumption. The dust often causes acute respiratory problems. Given the poor condition of the hospitals and health centers, this only worsens the health situation for the inhabitants. There is poor disposal of waste, and lack of modern toilet facilities to take care of human waste in such a congested urban center.

To pollute is to “impair the purity of: destroy or violate the sanctity of: CORRUPT, DEFILE, DESECRATE, PROFANE” (Merriam-Webster, 1993). In this regard, human pollution is a very serious problem and challenge to development throughout Southern Sudan. Human pollution manifests itself in the form of people loitering in the places of work (e.g. government offices, businesses, schools, and churches). Government offices and ministry compounds have become places where you see thousands of idlers gossiping, taking tea/coffee, and walking around. This causes a lot of disturbance to people who should be doing their routine office work. It destroys or violates the sanctity of the offices, and adds to the delays in getting things done to implement badly needed public projects.

### **3.9 The economy**

The Gross National Income per capita in Southern Sudan is estimated to be less than US\$90 per year. Southern Sudan’s income is about four times lower than the level of the rest of Sudan. The proportion of the population earning less than one dollar a day is around 90% (NSCSE and UNICEF, 2004). It is therefore among the poorest regions in the world.

The lack of infrastructure constrains both growth and access to social services. Infrastructure links between regions are critical not only for the economic integration of the country but also for fostering a sense of national unity. Only about 15% of Sudan’s population has access to electricity. Transport infrastructure deteriorated due to prolonged war, budgetary cuts, and limited access to foreign financing. Many of the roads, railways, bridges, river transport, and sea ports that survived the war are in need of substantial repairs. In rural areas of Southern Sudan, infrastructure is virtually nonexistent. There are no paved roads at all in the south outside the GOSS-held towns of Juba, Malakal, and Wau; river transport has resumed, but to a very limited extent; and north–south rail connections are largely out of service (UNDP, 2006).

Among three major challenges that the GNU has faced, the third challenge is how to combat pervasive poverty and the sense of marginalization, hopelessness, and exclusion in the Sudan (Deng, 2004). The others, well elaborated by (Deng, 2004), are sustaining peace, and transforming war-based institutions into those of participatory governance. Citing a policy statement from the speech of Dr. John Garang de Mabior, on the occasion of the signing of the Nairobi Declaration on 5th June 2004, Deng pointed out two

types of poverty in the Sudan. One is conflict-induced poverty resulting mainly from political, economic, and social exclusion. The other is structural poverty, resulting from socio-economic factors and ill-conceived public policies. Both of these result in the prevalence of high unemployment in the economy. The two types of poverty in the Sudan would require different policy actions. For instance, a recent work by Ali Abdel Gadir Ali indicates that “the growth elasticity of the head-count ratio for Southern Sudan is very low implying that a percentage point increase in per capita GDP is expected to reduce poverty by only 0.23 percentage points. This is a reasonable expectation given that the region was in conflict for a long period of time” (Ali, 2004). Ali gives the growth elasticity of the head-count ratio for Northern Sudan as very high (–1.7) – the policy implication of this is that a percentage point increase in per capita GDP is expected to reduce poverty in the north by 1.7 percentage points, which is about 7.4 times that of Southern Sudan. Combating poverty, marginalization, and exclusion would therefore call for more than growth-oriented policies.

(Deng, 2004) has also outlined actions (calling them 5Rs) to be taken to reduce poverty: re-establishing institutional infrastructure; rehabilitating physical infrastructure; reinvesting in human capital; revitalizing social capital; and regenerating economic growth. However, (UNDP, 2006) has emphasized that growth cannot be translated effectively into poverty reduction without creating broad-based employment. The immediate policy strategy of Southern Sudan should, therefore, be focused on a large-scale public investment program concentrated on improving productive conditions in traditional farming and herding. Employment-intensive public works programs to build badly needed rural economic and social infrastructure should become the centerpiece of a pro-poor rural development policy, focusing particularly on small-scale infrastructure, such as storage facilities and rural roads, to directly and immediately benefit poor farmers and herders, and large-scale infrastructure projects designed to connect the far-flung reaches of such a large country to a common transportation, power and communications network (UNDP, 2006). This would directly create broad-based employment and directly fight poverty.

According to (Deng, 2004), rehabilitation of physical infrastructure is critical, from the perspective of the GNU, in sustaining peace and in combating poverty and the sense of marginalization and exclusion in all regions of Sudan. The Southern Sudanese economy has to be integrated into the Sudanese economy. The key to economic integration of a land-locked region like Southern Sudan is infrastructure, especially an efficient roads network. Southern Sudan, with a land area of 648 000 km<sup>2</sup> does not, for instance, have a single kilometer of paved road other than inside the three garrison towns of Juba, Malakal, and Wau (Deng and Kategile, 2004).

There was, however, some improvement at the end of the first civil war (1955–1972), when under the Addis Ababa agreement a limited authority was given to the regional government in Juba to establish appropriate institutions to develop physical infrastructure. This led to the construction of a network of gravel-surfaced roads of > 2500 km connecting Juba to Wau (840 km), Juba to Malakal (728 km) and to countries bordering Southern Sudan (Deng and Kategile, 2004). A journey backward in the history of Southern Sudan shows that the first decade (1972–1982) of the post-Addis Ababa Agreement was, thus far, the golden decade of development. However, these efforts at infrastructure development were not sufficient to improve the general living conditions of ordinary Southern Sudanese, hence the eruption of the second civil war in May 1983. In light of the prevailing conditions in Southern Sudan, urgent actions are required to rehabilitate transport system (roads network), telecommunication, and public utilities (electricity and water). Rehabilitation of these systems would send signals to the private sector to participate in the post-conflict economic recovery and reconstruction, which could contribute in generating growth at the early stages of the war–peace transition (Deng, 2004).

Resource mobilization will remain critical to the success of this strategy. Domestic resources from increases in non-tax revenues and from oil production can be harnessed. But the very low level of taxes in Sudan needs to be raised as will be shown later. In addition, external resources are absolutely crucial. This would necessitate cancellation of Sudan’s onerous external debt and a substantial increase in Official Development Assistance (UNDP, 2006).



### 3.10 Employment growth and poverty in Southern Sudan

There are specific major economic issues that need to be addressed to make growth effective in reducing poverty. The first is emphasizing the role of agriculture in the economy. According to the (UNDP, 2006) assessment of Sudan, agriculture is central to the issue of rural poverty. Stressing agricultural and rural development helps to avert famines and food insecurity, boost non-oil exports, and provide inputs to manufacturing, in addition to producing wage income. The issue of efficient allocation of such inputs as credit, pesticides, fertilizers, and energy is important, as the modern mechanized sector claims most of the resources, while the traditional rainfed sector lags behind. The World Bank *Sudan Country Economic Memorandum* (World Bank, 2003) notes that in spite of the fast growth of output in agriculture by some 20% during the 1990s, there is evidence that poverty is on the rise, especially in the rainfed sector.

The World Development Report 2008 (World Bank, 2008) identifies three contributions of agriculture as an instrument of growth: it is a pro-poor engine of growth, it provides a critical instrument for poverty reduction even as dynamic nonagricultural sectors emerge, and it acts like other tradable sectors.

#### 3.10.1 Agriculture as an engine of pro-poor growth

Food production sector is largely non-tradable in most developing countries because of locally specified foods, incomplete trade liberalization, or high internal transactions costs. Under these conditions, agricultural growth spurs growth in nonagricultural sectors through lower food prices and by providing effective demand for locally produced industrial goods and services. If productivity growth in agriculture is sufficiently high, the nonagricultural sectors grow even more rapidly than the agricultural sector, leading to a structural transformation of the economy in which agriculture has a declining share in GDP. *This pattern of growth is also very effective for overall poverty reduction*, particularly when the share of agriculture in GDP is high at the outset and where agricultural growth is broad-based (World Bank, 2008). The implication of this is for the implementation of a policy to re-distribute agricultural investment into the traditional rainfed sector. It also calls for a reassessment of activity (especially cropping) choices based on a robust crop diversification analysis.

### Box 3: President Museveni on subsistence farming

“There are two weaknesses with African farmers. You are still practicing subsistence farming and you produce to fill your stomachs only and not your pockets. You still use the same methods that our grandfathers used. We are using the soil the same way we found it. We need to produce top quality, process it ourselves and then market it so that we can add value. Soil is not for just looking at it. Producing enough from the soil to just eat is ridiculous.”

President Yoweri Kaguta Museveni,  
July 17, 2003.

#### 3.10.2 Agriculture as an instrument for poverty reduction

Rapid growth in industry and services leads to economy-wide growth but *agricultural growth remains essential for reducing poverty and improving equity*. In the short run, while large numbers of poor rural people have not yet adjusted to the opportunities emerging in nonagricultural sectors of the economy, it is critical to invest in agriculture as an effective instrument to reduce poverty and to manage the rural–urban income divide. Rapid nonagricultural growth provides an important source for this agricultural growth through the dynamics of consumer demand for high-value products, such as fruits, vegetables, animal products, and health foods. By reducing inequality, efforts to address rural poverty can also provide a source of long-term growth (see World Development Report 2006, World Bank, 2006), based on greater entrepreneurship of the poor and the expanding domestic markets that arise through more widely shared prosperity (World Bank, 2008).

### **3.10.3 Agriculture as a tradable sector**

Particular sub-sectors of agriculture have a comparative advantage, especially if this advantage is driven by dynamic markets and supported by appropriate public investments in research, development, and infrastructure. The poverty reduction value of this kind of agricultural growth depends on participation of a competitive smallholder sector and opportunities for remunerative employment in rural labor markets, in part driven by agricultural growth (World Bank, 2008). The implication of this for Southern Sudan is increased investments in rural manpower development.

Given the fact that most adults did not receive any formal education during the war, focus should be placed on vocational training to make these adults more employable in a farm-induced manufacturing sector. Southern Sudanese returning from the diaspora where they had better opportunities to be trained could be deployed to transfer some of this knowledge in such vocational schools so as to improve the current precarious situation of agriculture in Southern Sudan.

### **3.10.4 Children's rights**

The proportion of children who work in their households (58%) is higher than in the neighboring countries and four times higher than the level in the rest of Sudan. This also explains why children are not in school. There is virtually no birth or death registration in Southern Sudan.

## **4. THE AGRICULTURAL SITUATION IN SOUTHERN SUDAN**

Majority of households in Southern Sudan rely on agricultural production which is mainly subsistence traditional rainfed farming. This fact is recognized by the SPLM which states in its vision for agriculture that it is the prime engine of growth as it provides livelihoods for > 80% of the Sudanese. SPLM states its mission for agriculture as reducing poverty by transforming subsistence agriculture to commercial agriculture. It endeavors to address the challenges of linking rural agriculture with value adding infrastructure and markets, rights of women, and good governance – Transparency, Responsibility, and Accountability (SPLM, 2008).

This section reviews available literature on the state of agriculture in Southern Sudan in terms of area cultivated, constraints to development, markets, and food sources. It is mainly based on an assessment done by the WFP, FAO, and the Ministry of Agriculture (WFP–FAO–MAF, 2006). The assessment forms a good baseline for measuring future progress in these areas in a region where not much research has been done over the last two to three decades that were characterized by war, destruction, and displacement.

### **4.1 Crop cultivation and livestock production**

Of households assessed in the 2006 season (WFP–FAO–MAF, 2006), about 85% did some cultivation and only 15% did not. Some of the reasons given for not cultivating include: not living in normal place (18%), lack of inputs or tools (15%), no land available (13%), insecurity (13%), and household returned after planting season (10%). On average, the assessed households cultivated about 2 feddans (1 feddan is 0.42 ha). There were large variations in size of cultivated land area between states. In terms of land utilization, the proportion of households that cultivated all available land with cereals ranged from 7% in Central Equatoria State to 41% in Unity State. Similarly, the proportion of households that cultivated available land with other crops ranged from 0.4% in Unity to 30% in Western Equatoria State.

Given the problem of land preparation, it was expected that ox-plowing would be adopted for cultivation. However, the percentage of households that used oxen for plowing was only 8%; and mainly in Lakes, Eastern Equatoria, and Warrap States. These findings suggest that there is still a lot of scope to increase household agricultural production by increasing the cultivated area, through increased use of animal draught power, resettlement back home from displacement at the appropriate time, and provision of security and appropriate inputs. In this regard, the current policy of the Ministry of Agriculture and Forestry of massive use of tractors is ill-advised given the predominantly traditional setting of the farming system and the small farm size.

Livestock is a major sector in the economy of Southern Sudan and a major source of livelihood to the majority of the population. About 65% of the assessed households kept their own livestock (WFP–FAO–MAF, 2006). After decades of war, disease and starvation had claimed much of the region's estimated (Majok and Schwabe, 1996) four million livestock. According to (FAO and WFP, 2000), the contribution of livestock to food security in Southern Sudan varies from state to state according to zonal susceptibility to trypanosomiasis. Generally, animal production contributes significantly in most of Bahr el Ghazal, Upper Nile, Jonglei, and Eastern Equatoria.

During the war, the OLS program trained and established 718 animal health workers and 32 vaccinators, an intervention that resulted in the strategic vaccination of more than 271 000 head of cattle against various diseases, including rinderpest (149 000 head). Today, as it was then, given the mobility of nomadic and semi-nomadic herds and flocks, the maintenance of vaccination programs is of concern not only for the animals of Southern Sudan but also for the livestock in neighboring countries.

#### **4.2 The role of women in agriculture in Southern Sudan**

Using farm-level data from Southern Sudan, (Guvele, 2004) showed that women there now play an increasing role in sustaining food security as in many lower income countries. They are the majority of agricultural producers and are mostly responsible for providing food for their families. Hence, the future of agricultural security now also increasingly leans on women. But the role of women in agriculture is often unnoticed because it is not recorded. Most of the work performed by women in agriculture and to process food is unpaid. In Southern Sudan, though women face these same circumstances, their traditional place of being at the service of their male counterparts has generally remained intact. Women's share of productive assets and the return on their farm resources are significantly lower.

Reversing this trend should be a policy prerogative of donors and the government. Strategies to improve the conditions of women should be adopted not just for those working in government offices, but by training rural women, innovating and producing appropriate rural women's technology, and providing financial empowerment to women.

#### **4.3 Crop diversification in Southern Sudan**

(Guvele, 2004) used the Certainty Equivalence technique with data from two counties in Southern Sudan to analyze farmers' crop selection in response to a strategy to revive agricultural activity after decades of civil war. Donors spent billions of dollars in humanitarian and development assistance to alleviate the suffering due to the conflict and widespread food insecurity over the past three decades in Southern Sudan. With millions of people in need of assistance, with little hope that their situation would improve significantly, and with the realization that the high levels of humanitarian assistance were unsustainable, there was a need to look at innovative ways to respond to the region's needs. The aim of United States Agency for International Development's (USAID's) work in Southern Sudan was to improve the capacity of the local population to meet their own needs.

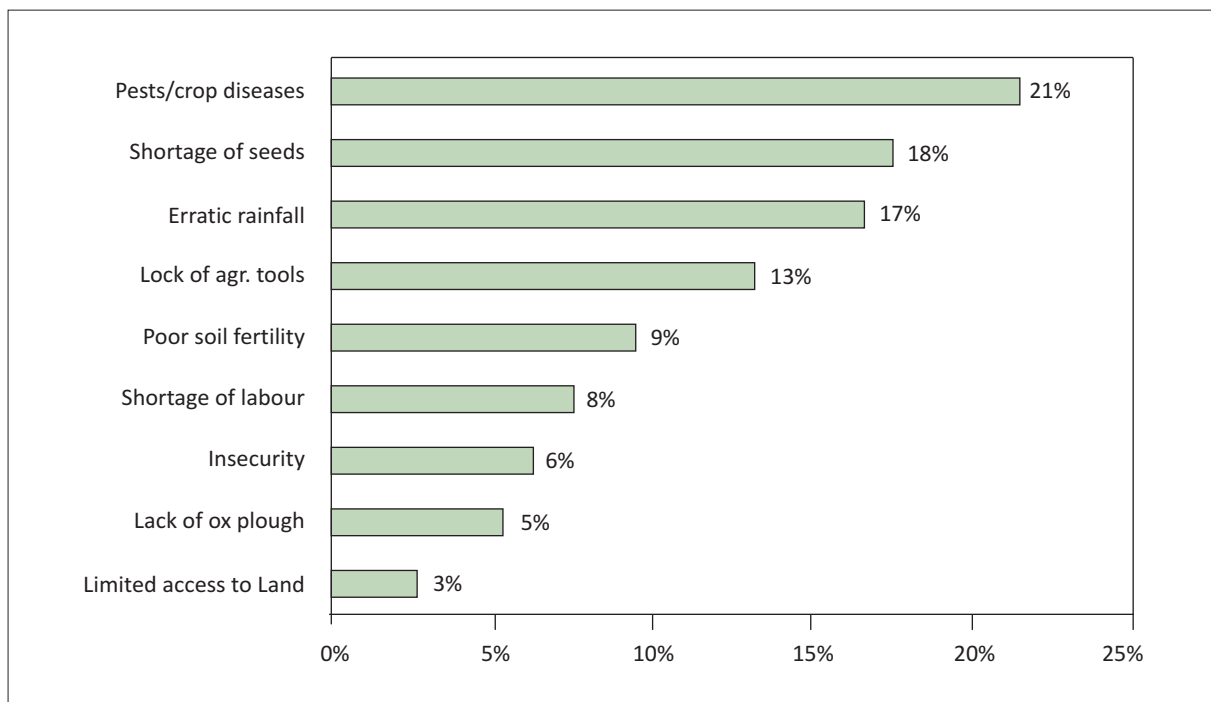
Pilot activities and assistance targeted agriculture to increase local food production and provide the population with the means to make the transition from relief to development. At a later stage, this was termed 'preparing Southern Sudan for peace' (USAID, 2002). The need arose to analyze the farmers' choice of activities. Given the uncertain social and economic circumstances of the region, the application of risk analysis techniques to analyze farmers' choices was considered appropriate. The results revealed that there are significant gains from diversifying into marketable high value crops. Farmers diversified away from bananas in Maridi and maize in Yambio. Diversification reduced the variability of income. Farm models with risk analysis show that at higher risk aversion scenarios (where producers adapt conservative approach towards risk), with diversification, the percentage fall in the mean farm income was smaller than the corresponding fall in variance.

#### **4.4 Agricultural and livestock production constraints**

According to the (WFP–FAO–MAF, 2006) assessment, agricultural and livestock production constraints in Southern Sudan are primarily related to lack of basic extension services. Since some of the Government

ministries have not fully evolved to the state level, basic services continue to be provided by relief organizations who do not have sufficient capacity to cover all areas where the services are needed.

The main constraints to crop production during the 2006 season were pests/crop diseases (reported by 21% of the households) (see Fig. 2). The locally made cultivation tool (maloda) could be a limiting factor for crop production. It could, however, be replaced by other effective tools such as ox-plows and hoes that enable farmers to cultivate larger areas. The awareness and availability of necessary pesticides could help to control the spread of pests and diseases. Therefore, unless better tilling methods are used it will be difficult for households to produce enough for consumption and generate surpluses.



Source: (WFP-FAO-MAF, 2007).

Figure 2. Sources of household income in Southern Sudan

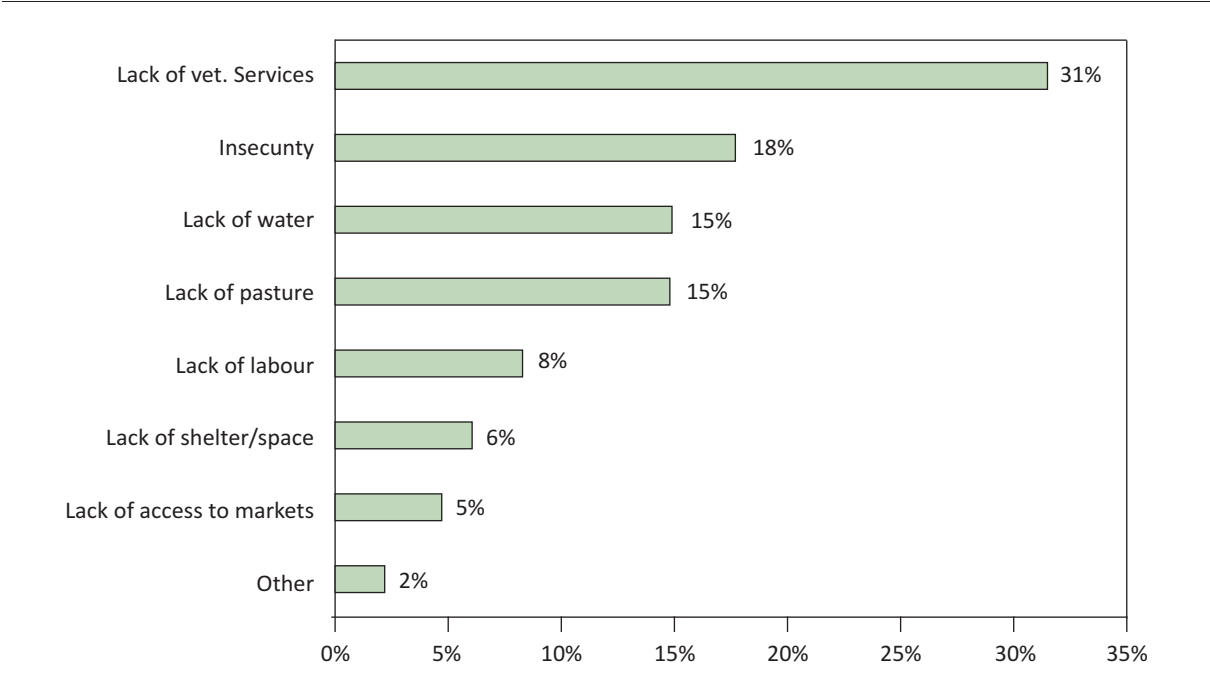
The main livestock constraint is lack of veterinary services reported by 31% of the assessed households (Fig. 3). Besides these constraints, continuous wet conditions encourage ecto- and endo-parasite development and foot rot, so body condition is not as good as might be expected. Liver fluke and gastrointestinal roundworms are serious problems in low-lying pasture areas. Similarly, ticks and lumpy skin disease are often reported as of concern in Upper Nile and Jonglei States. On the positive side, the Dinka-Nuer peace agreement at Wunlit (Tonj County) has led to Dinka/Nuer tribes shared grazing in the Lakes-Western Upper Nile pastures, which has gone some way to offer a haven from the disruption of grazing patterns caused by conflict in Unity State.

Throughout the war period, veterinary services were provided through relief organizations and it is likely that private sector involvement in the provision of veterinary services could improve the delivery of the services. Another constraint reported by the households was insecurity, which restricts the mobility of livestock to grazing areas. Competition for water and pasture in times of scarcity is also a cause of insecurity. Interventions such as development of livestock corridors as well as water catchment points for livestock need to be prioritized in areas prone to such conflicts.

#### 4.5 Agriculture and the poverty nexus in Southern Sudan

The farm and poverty nexus is very clear in Southern Sudan but no data are available to substantiate it. However, the (WFP-FAO-MAF 2006) carried out an assessment on the livelihoods of the population. The

analysis reveals very fascinating numbers that tell a lot about poverty. The following sections summarize these findings. The perception and aspirations of the households demonstrate it. It is manifest in the crop seeds situation, food sources and consumptions patterns, diets, short-term food shocks, lack of markets, and household expenditures on foods.



Source: WFP-FAO-MAF 2006.

Figure 3. Livestock production constraints

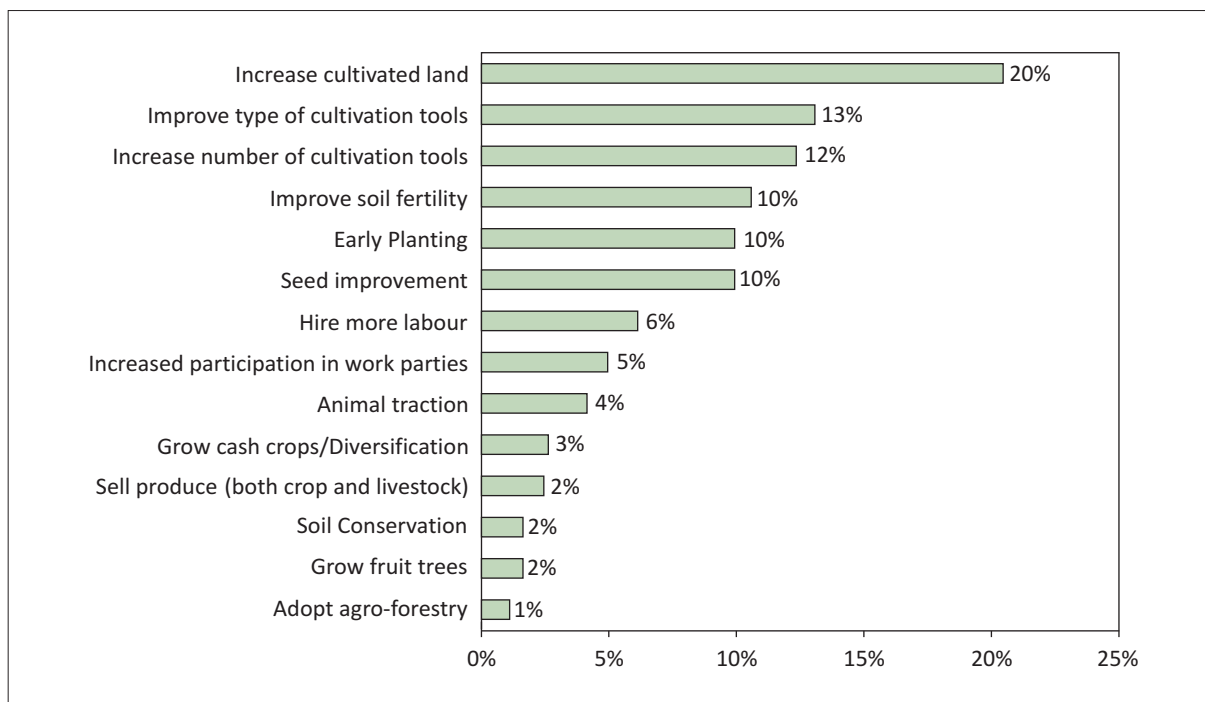
**4.5.1 Aspirations**

Households expressed what they would do to increase household food production (Fig. 4). Recovery and development initiatives should align to these aspirations to enhance their effectiveness in addressing the immediate food security priorities for households. These priorities offer the best opportunity to increase production to reduce poverty, if all the conducive environment factors that this review has so far attempted to portray are brought to bear on the production system.

**4.5.2 Crop seeds**

As a result of the prolonged war in Southern Sudan, it was feared that many communities had lost their seed stocks. Efforts to replenish seeds became a priority of the government and relief agencies. Hence, about 22% of the assessed households reported that they received seeds during 2006. This proportion varies from state to state and ranges between the least (2%) in Western Equatoria State to the most (39%) in Upper Nile State. In terms of preference for vegetable seeds, it is clear that okra was the most preferred, followed by pumpkin, tomato, and cowpeas. This suggests a need to popularize other vegetables through demonstration farms and farmer field schools. Lack of seed has been cited as a major constraint to agricultural production, hence it is necessary to strengthen the seed delivery and also combine it with related agricultural training. However, for two years in a row (2006–2007) MAF (Ministry of Agriculture and Forests) has failed to provide badly needed seeds on time. In 2006, cereal seeds were brought from Northern Sudan. These were not suitable for the ecological conditions of Southern Sudan. It is not surprising that Western Equatoria was least among states that received seed aid.

It has been reported (Guvele et al., 2000) that short-lived humanitarian emergencies often evoke considerable public sympathy and response in terms of supplies, including food aid. It is important to introduce local empowerment and participation quickly to recover from emergencies. The experiences of USAID-funded activities through the Office of Foreign Disaster Assistance in Western Equatoria State



Source: WFP-FAO-MAF 2006

Figure 4. Households' expressed actions to increase production

illustrated that resources from Southern Sudan itself can be mobilized with some pump-priming from donors to rehabilitate key sub-sectors of the local economy and redirect it toward local and regional markets and away from a purely relief-subsistence system. The general observation by donors, recipients, and implementing agencies is that the strategy of seed multiplication in Tambora and Yambio was primarily responsible for inducing actions that led to increases in surplus food production in the area; the opening of regional trade routes for agricultural commodities; monetization of the pastoral livestock sector; and the re-emergence of intra and inter regional commercial links among the agriculture, livestock, and manufacturing sectors (Guvele et al., 2000). Farmers responded to the increased willingness of relief agencies to purchase food locally for distribution in deficit areas by increasing production of the preferred cereal crops (especially sorghum) of relief organizations.

## 5. REQUIRED ACTIONS FOR AGRICULTURAL DEVELOPMENT

The (World Bank, 2008) recommends five policy actions to improve the performance of agriculture in economic growth and poverty reduction: increase agriculture budgets; search for new sources of agricultural growth; make agriculture more pro-poor; provide agricultural support programs; and address the global agenda. There is need to add empowerment of women given the increasing role they now play in agricultural security.

### 5.1 Increase national agriculture budgets

The three roles of agriculture for development have been underutilized because of a well-documented historical urban bias in public policies, a frequent misallocation of public expenditures in agriculture toward inefficient subsidies as opposed to public goods, and a private investment climate often hampered by insecurity of property rights, inadequate infrastructure, and lack of financial services. Removal of these biases offers major opportunities to place agriculture back on the development agenda as a unique instrument for growth and poverty reduction.

Southern Sudan needs to give a high priority to agricultural and rural development and allocate substantial national budget to that sector if human development goals are to be met.

## 5.2 Exploit new sources of agricultural growth

New sources of growth include new technologies and institutional innovations to reduce transactions costs and risks on the supply side, and dynamic markets and improved incentives on the demand side. Better policies offer the promise of broadly improving agricultural productivity with initial priority on staple foods. Significant sectors with comparative advantage in cash crops, livestock, and nontraditional exports are also important as sources of growth. Transitions to high-value activities driven by rapidly expanding urban and global markets provide major new sources of growth. These dynamic sources of effective demand can be captured by major reforms in trade, structural changes in markets, institutional innovations, technological progress, and improved natural resource management.

## 5.3 Pro-poor and sustainable growth

The (World Bank, 2008) recommends three strategies to ensure pro-poor growth. First, policies should be designed and implemented to increase access to assets (land, water, and human capital) for the rural poor. These policies should be targeted by gender, age, and ethnicity to maximize poverty reduction effects. Secondly, the productivity and profitability of small farmers should be improved. These include a widely shared smallholder-based 'green evolution' for traditional rainfed areas, competitive smallholder participation in emerging high-value product markets and supply chains, and better management of scarce natural resources, especially land and water. Employment and wage incentives in agriculture and non-farm activities should be increased. Nonagricultural employment is largely linked to agricultural growth, either upstream or downstream. Interventions to promote local economic development provide opportunities for income diversification in rural areas and more integrated labor markets.

Lastly, migration out of agriculture should be planned and managed, and remittances from these migrants back into the farm sector should be made more effective. The policy implication of an effective migration is that regional disparities should be closed by targeting interventions to induce more rapid growth in lagging regions or to facilitate out-migration.

According to (Deng, 2004) reinvesting in human capital is critical for poverty reduction. The impact of conflict on human capital is more acute in Southern Sudan than in the rest of the country. As a post-conflict region, expectations would normally be with respect to the provision of basic social services – education, health, water, and sanitation. Management of these expectations would call for the establishment of primary schools in all the *bomas* (villages) in the Sudan with the view of achieving a compulsory universal primary education; establishment of primary health care units in all the *bomas* in the Sudan; establishment of accelerated learning centers for adult education in all the counties; provision of block grants to the States to establish secondary schools; support for the establishment of vocational training centers/schools in the war-affected areas; restoration of international standards of academic excellence to the national and state universities and colleges; encouraging development of private healthcare facilities and training centers, including private schools and hospitals; and participation of the private sector and non-profit organizations in the delivery of social services.

Reinvesting in human capital would in turn improve institutional quality (i.e. civil service). So the task is to re-build an inclusive, efficient, and effective civil service system which is one of the main components of institutional quality (Easterly, 2004). Moreover, an efficient civil service would accelerate restoration of systems of accountability and transparency in the management (i.e. mobilization, allocation, and utilization) of public resources. Transparency and accountability would reduce chances for corruption and misuse of scarce resources. An efficient system of accountability and transparency would in turn ensure that the budget is a "financial mirror of society's economic and social choices" (Schiavo-Campo et al., 1999).

Coordination between the north and south on a range of tax issues, such as customs collection and non-oil revenue transfers, is important. Devolution of taxes need not entail a decentralization of tax administration. A careful review of the current tax system in Southern Sudan could help to ensure that the collection effort is guided by the provisions of the CPA and the INC, and that duty and tax collection are supported by valid legislation. Care should be taken to clearly lay out the respective roles of national, GOSS, and state revenue authorities in administering the tax system. Given the importance

of transparency, it will also be critical to ensure that basic transparent tax assessment and collection procedures are defined and supported by consistent processes (World Bank, 2008).

#### **5.4 Agriculture support programs**

Exposure to risk is particularly high in agriculture, with the rural poor especially vulnerable to resulting shocks. Ex ante risk management is costly to the poor and irreversibilities in coping with shocks via asset decapitalization are sources of new poor. Reducing risk and vulnerability is a key mechanism for rural poverty reduction that has received insufficient attention. In addition, out-migration leaves a *higher proportion of those remaining reliant on subsistence agriculture and unskilled farm work*, and consequently increasingly vulnerable to shocks. The challenge for poverty reduction is to design a policy set which provides social assistance, where appropriate, and productive safety nets and income generation opportunities to catalyze sustainable livelihoods for poor people (World Bank, 2008).

#### **5.5 Address the global agenda**

Successful agriculture for development strategies depends on tackling an increasingly complex global agenda that includes trade agreements; global climate change; pandemic diseases for humans, animals, and plants; intellectual property rights; and the delivery of international public goods. Delivering on this global agenda will require better coordination among the players and greater commitment to the world development challenge, in particular regarding the role of agriculture (World Bank, 2008).

#### **5.6 Empowerment of women**

In an analysis of the role of women in agriculture, (Guvele, 2004) concluded that the security of the family farms in Southern Sudan increasingly depended on women. This section benefited from this analysis. Women should therefore be encouraged and trained to become principal partners in improving agricultural economic activity.

To design better policy options for women, there is need for good information. Given the fact that gender-disaggregated data are hardly available, especially on access to resources and services, and benefits derived by men and women, it is of utmost importance that gender-disaggregated data is collected through well-targeted surveys by local government institutions and the general census. Information should be gathered on the access of men and women to agricultural advisory services and training in order to monitor whether efforts to improve production are effectively reaching women farmers. If women are not benefiting equally with men, a constraints assessment should be conducted to see how women can be better reached.

Training people in the agricultural services to take women's needs into consideration and to provide them with some simple tools for gender-analysis and planning, could be a first step to ensure that women get better access to input and support services. Attention should be paid to tools for the transfer of new technology to illiterate people or people with low educational attainment. These are most likely to be women.

To ensure better access for women to production resources like improved technology that fits their needs, researchers and engineers should be encouraged to develop technology and/or design machinery that especially benefit women. Labor saving technologies for agricultural production and food processing in the rural areas should be the main focus. The agricultural operations in which women are mostly involved are the most time-consuming (e.g. weeding, harvest, and post-harvest operations). To ensure that gender-disaggregated data will be adequately translated into practice in agricultural development program and planning, policy makers and planners could be trained in gender-issues so that the needs of women farmers are addressed. The Ministry of Gender and Labor should be specifically supported to specialize in assisting in the collection of gender-disaggregated data, monitoring of women's access to agricultural advisory and training services, doing constraints analyses, and training and attracting agricultural advisory service personnel, researchers, and policy-makers.

The long-term policy objective of the government should be the security of agriculture to secure food. Hence, the development of the rural traditional rainfed farming, where most of the people live and



derive their food, will be fundamental in attaining such goal. Since, the security of agriculture now falls on the shoulders of women, improving the fiscal and monetary environment in which they operate will be essential. In this regard, the return on farm produce should be increased. Hand-in-hand with these, agricultural development will be greatly enhanced if the quality of life of the rural population is improved through better education and health services.

The returns on rural farm produce will increase by a strategy to develop a demand-driven and farmer-oriented agricultural service delivery system that targets women and youth. The aim of such a strategy would be to improve rural livelihood through increasing agricultural productivity and profitability by increasing farmers' access to market information and technologies for profitable farming. This should lead to the development of commercial farming, empowerment of subsistence farmers to access new technologies, market information, and financing. The efficiency of the delivery of such services will be increased by involving the private sector (university professors and farm institutions) in providing farm advice to farmers without charge. While relief-oriented NGOs can help to alleviate production problems for humanitarian purposes, their role should not be to impact the long-term production systems. NGOs should be encouraged to involve local businesses to actively participate in the performance of marketing functions. This way, a cadre of local traders and producers can be trained to engage in productive agribusiness.

Well-defined property rights are important for development. Sudanese women have been discriminated against in the areas of property acquisition, wages, education, and access to inheritance. Laws have to be enacted to stop such discrimination and reform of the land laws will be a vital first step.

## 6. FISCAL MANAGEMENT AND POVERTY IN SOUTHERN SUDAN

The Government of Southern Sudan (GOSS) was established only 3 years ago, facing the daunting task of rapidly improving the well-being of the people of this region, and getting the region onto an accelerated development path that is consistent with its rich endowments. One key advantage of Southern Sudan is the large domestic resources that are available as a result of oil production, such that there is much less aid dependence than in many post-conflict economies such as Afghanistan, Mozambique and Cambodia – provided that public resources are managed appropriately (World Bank, 2007).

The (World Bank, 2007) has identified three areas for increasing the level and quality of pro-poor spending in Southern Sudan: improving planning and the analytical underpinning of budget preparation; enhancing budget credibility; and reallocating from non-pro-poor spending. Specific actions include addressing data constraints (including a poverty analysis and household budget survey), requiring explicit poverty motivation of budget plans at the sector level and within a medium-term timeframe, eliminating the gaps in budget execution rates between pro-poor and non-pro-poor expenditures, providing much better data at the state and local level on the use of funds to inform decisions and allocations, and dedicating resources to development expenditures at the state level where they will directly benefit the poor and marginalized areas. There is also the need to improve cash management, civil service, revenue management, and debt.

### 6.1 Performance of pro-poor spending in Southern Sudan

There are several challenges in Sudan that make international good practices in monitoring pro-poor spending difficult to apply. A conceptual understanding of pro-poor spending in the relevant development literature is that pro-poor spending refers to "*spending that benefits the poor more than the non-poor; spending that actually reaches the poor; and spending expected to have an impact on the welfare of the poor over time*". Identifying pro-poor spending in Sudan is constrained by: the quality and classification of budget data; the decentralized responsibility for basic service delivery; the lack of data on outcomes and a missing culture of accountability; and the lack of a coherent set of policies that can anchor a definition of poverty-reducing allocations (e.g., via a national poverty reduction strategy) (World Bank, 2007). An analysis of the budgets of GOSS for 2 years provides a good basis on whether spending has been pro-poor or not. This is supposed to have been a liberation government. Liberation from marginalization, deprivation and exploitation of the South by the North! The reviews are done in light of the poverty measures reviewed at the beginning of this document.

### **6.1.1 GOSS 2006 budget**

The planned allocation of funds in 2006, as laid out in the budget documents passed by Parliament, was broadly consistent with the development targets laid out in the JAM (Joint Assessment Mission), even if the allocation of funds to the SPLA (around 40% of the budget) was larger than initially expected. Sector programs were launched in 2006 for infrastructure, health, education, and water and sanitation. This process has been bolstered by budget sector working groups (BSWGs), which have been functioning since 2006 to assist the Government in sector planning and budget formulation. In 2007, the functioning of the BSWGs was strengthened and enlarged to include participation by the State governments, thereby enhancing the comprehensiveness of the planning exercise and extending capacity-building in budget formulation to the States (GOSS 2008; World Bank, 2007).

As pointed out earlier, there was limited fiscal discipline over much of the year and actual execution bore little relation to the plan. The overall balance in 2006 moved sharply into cash deficit due to inadequate spending discipline. Aggregate spending was driven by outlays on wages and operations that were roughly double the planned amounts, whereas capital expenditures were cut sharply. Cash deficit before grants summed up to \$430 million, which was augmented by suspense and direct expenditures that await clearance and was financed through significant depletion of accumulated reserves.

Withdrawals from the national Oil Revenue Stabilization Account (ORSA) accounted for about a quarter of the GOSS revenues in 2006, together with virtual depletion of GOSS's own reserves, which compensated for the shortcomings in oil revenue transfers and donor finance. Delays in bringing significant Dar blend production on-line, as well as poor initial export sales prices, lowered oil revenue to the South – \$953 million in 2006 against a budgeted amount of \$1.3 billion. Actual transfers from the GNU were even lower, at \$846 million, due to arrears in GNU payments (\$64 million), as well as direct expenditures by the GNU. A shortfall in donor grants was another contributing factor to revenue problems, with only a third of expected support realized. The grants came solely from the Multi Donor Trust Fund (MDTF). There was no financial support received from non-MDTF sources, which was expected to finance about \$242 million worth of development programs in Southern Sudan (GOSS 2008; World Bank, 2007).

Aggregate spending was nearly one-quarter above target. The largest reductions were for infrastructure (20% to 11%), education (10% to 4%), and health (8% to 4%). The share under the broad label of "accountability" substantially increased – mainly due to significant overspending by MOFEP. The agencies accounting for the largest spending were, in rank order, the SPLA, MOFEP and interior affairs, collectively comprising 60% of the outlays. Resources to health and education together accounted for only 7% of total expenditures. Available information about the execution of capital spending suggests that little was initiated by way of development projects, and that the bulk of this spending was on vehicles for GOSS ministries and agencies. There were also significant operational expenditures (GOSS 2008; World Bank, 2007).

Spending increases in 2006 were driven by outlays on salaries and operations of ministries and public administrators that were larger than planned. The increase in the wage bill reflected the characteristics of a transition of Southern Sudan to a post-conflict environment, including establishing a government and the popular expectations associated with the provision of support for members of the SPLA and the States. It appears that the escalation in the size of the organized forces (prison wardens, wildlife, police and war veterans) to about 80% of the civil service is associated with some *de facto* demobilization of the SPLA. The number of personnel supported by GOSS in the States is unknown; conditional transfers by the ministries of agriculture, health, education and legislative assembly to cover personnel compensation accounted for 16% of the total wage bill in 2006. The purchases of general office supplies and the cost of travel and staff training were incurred to carry the operations of the ministries. The operations in the States and other levels of cabinet affairs cost \$166 million. The food supply for SPLA also contributed substantially to operational expenditures (GOSS 2008; World Bank, 2007).

Weak administrative controls were associated with an expansion in the size of the bureaucracy. The progress in building an effective civil service has been slow and constrained by the lack of a functioning

payroll, shortages of qualified staff and the absence of proper procedures for recruitment and incentives. Administrative controls are weak and perpetuate a system whereby appointments, due to processes of recruitment and verification of qualifications, are not prerequisites for pay. The lack of administrative controls in the face of further expansion in the bureaucracy and in existing operations raise the need for urgent control measures in order to become fiscally sustainable. Major wage bill measures exerted an upward pressure on salary expenditures. The adoption of a higher salary scale during the second half of 2006 substantially raised wage expenditures. The decision to use an exchange rate of 250 Sudanese dinar to the US dollar for staff compensation in early 2007 also raised wage costs by about 25% relative to the budgeted amount. The lack of social security schemes to support war-affected persons put pressure on employment as a safety net for children, orphans, widows, disabled soldiers, and demobilized soldiers. However, this could undermine the quality of the civil service with the prevalence of low-skilled persons (GOSS 2008; World Bank, 2007).

Overspending on wages and operations squeezed aggregate capital expenditures in 2006. The execution for capital spending has been skewed in favor of the MOFEP and the ministries of environment, telecommunications and internal affairs, and at the expense of agriculture, forestry, water resources and irrigation, and road and transport infrastructure. In this sense, the composition of budget expenditures diverged from the stated emphasis on development and pro-poor expenditures. Execution of pro-poor expenditures, here defined as the expenditures by the ministries except by SPLA, MOFNE and the Council of Ministers, was below that planned (Fig. 5). The spending by the MOFNE and the Council of Ministers, on the other hand, was above the planned spending.

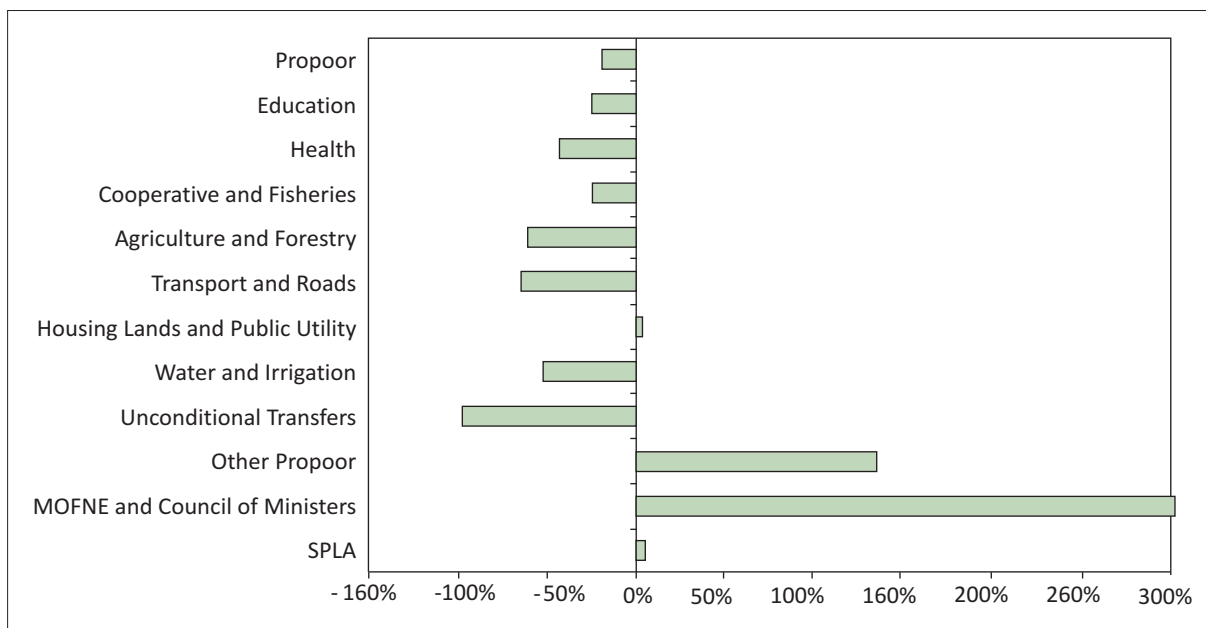
Overspending in Southern Sudan can be attributed to the lack of capacity for public financial management. The situation was characterized by underdeveloped accounting practices, absence of a well-defined system of controls, low human resource and governance capacity, and underdeveloped financial institutions. The non-oil revenue base in Southern Sudan is very thin. At the same time, there are non-oil revenue items that are not reported in the GOSS accounts, such as the non-tax income generated by the ministries for the services they render. For 2007, these ministries are estimated to have a budgeted income of US\$17 million. There are other sources of income that appear off-the budget, such as the police registration fee and travel taxes. There are also reportedly taxes collected by the GNU in the South, 50% of which are due to the GOSS, but the amounts are unknown. The significant appreciation of the Sudanese dinar, combined with the difference in the exchange rate used in valuing revenues and expenditure, effectively raises GOSS spending and lowers income. Although the budget expenditure plans were made in dollars, the revenue transfers were in dinars (which then had to be at least notionally reconverted, as the budget had been planned in dollars) (GOSS 2008; World Bank, 2007).

In summary, the 2006 GOSS budget was anti-poor. The performance of the 2006 budget underlined the need to exercise greater control over budgetary outlays, significantly limit spending that was not provided for in the approved budget, and improve revenue estimation, jointly with the GNU. Revenue predictability and associated issues around oil sector transparency pose a major challenge to the GOSS. The burgeoning cost of staff salaries is a major concern. The identification of the root causes (ghost workers, slow processing of appointments) is an important step, alongside reforms to preclude its perpetuation (e.g. payroll reform) in order to make serious progress on the public financial management agenda (World Bank, 2007).

Improving information and accountability remained a priority, at several levels: (i) better transparency in oil revenue sharing with the GNU; (ii) more timely information to allow prediction of resources and expenditure planning; and (iii) better and timely accounting for expenditure, by spending unit, and the MOFEP. The present lags not only inhibit parliamentary and public scrutiny, but also make sound budget management much more difficult (World Bank, 2007).

### **6.1.2 GOSS 2007 budget**

As for the 2006, (GOSS, 2008) and the (World Bank, 2007) have made an assessment of the 2007 GOSS budget. This section presents this review. The planned revenue envelope of the 2007 budget of the



Note: Only the unconditional transfers are depicted in the illustration. Other pro-poor expenditures refer to public administration, rule of law, economic function and social and humanitarian affairs. Above expenditures exclude suspense and direct expenditures that have no functional classification.

Source: World Bank 2008

Figure 5. Pro-poor expenditure performance in Southern Sudan

GOSS was similar to 2006, at \$1.622 billion. In addition to oil revenue, the budget was premised on operationalization of the new revenue authority and non-oil revenue of \$234 million, or about 5.5% of total GOSS income. This was ambitious. The SSLA (Southern Sudan Legislative Assembly) increased the target for non-oil revenues by some \$150 million, without specifically identifying sources. Moreover, as half of customs and excise duty (about one-fourth of the estimated non-oil revenue for 2007) is shared with the GNU, this would require a huge incremental effort. Given the nascent state of the revenue authority and the lack of proper taxation rules and legislation, and the fact that non-oil revenue in 2006 was only \$2 million, this was an impossible task to complete.

Turning to the expenditure side, the stated priorities for 2007 were outlined by the Minister as follows: address priority development requirements, notably agriculture, rural water, education, health, and infrastructure development; control the wage bill and ensure that the payroll and salary scales are adhered to; and enforce budget discipline and control extra-budgetary expenditures, and eliminate suspense accounts. The breakdown by economic category suggested a large increase in salary costs, which, at \$865 million, amounted to half of the total budget. This was more than triple that in the 2006 budget plan, and a 58% increase from the actual out-turns in 2006. Development spending dropped significantly, from almost \$1 billion in the 2006 budget to about \$541 million, and included a significant foreign financing component. Thus, for 2007, the MDTF accounted for about 40% of total development spending (\$218 million), compared to 15% in the 2006 plan and 10% in out-turns.

The 2007 budget involved several major changes in spending pattern relative to 2006. Most notably, spending on public administration and economic functions increased by almost 150%, which appeared to respond to the over-spending in 2006. Justice and law enforcement, accountability, and spending on services for the disadvantaged were also significantly increased. On the other hand, spending on education and health was significantly reduced by \$25 million in each case. Transfers to southern States were planned to increase by 10%, to \$125 million.

The execution of the 2007 budget showed continued oil revenue shortfalls, with expenditure rationing as reserves and oil savings were exhausted. Dar blend production shortfalls continued to cause oil revenue shortfalls into the first half of 2007. But, by July 2007, oil revenue surged from a 6-month average of \$86

million to \$167 million, which was well above the budgeted level of \$108 million. Production picked up considerably, with the completion of the export terminal in Port Sudan. Dar blend also achieved more favorable prices on the export market towards the middle of the year. Again, in general, the 2007 Budget was anti-poor given the cuts in education and health.

## **7. SUDAN'S BANKING SYSTEM AND POVERTY IN SOUTHERN SUDAN**

In its 2006 report, UNDP also made an assessment of Sudan's banking system in light of the overwhelming poverty levels in the country, especially in the rural areas. According to this report (UNDP, 2006), Sudan partially introduced Islamic banking in 1984, and completely in 1992. It is one of the very few countries in the world where the financial system is based completely on Islamic principles. In this case, it poses the challenge of conducting monetary policy on the basis of interest-free instruments. An interesting question is how the cost of Islamic finance compares to the cost of finance according to traditional banking practices. Another issue is whether banks were restructured in a way that is suitable for providing financial services according to Shari'a principles – an issue that is highly relevant for poverty reduction.

To regulate the cost of borrowing, the Bank of Sudan extensively and successfully used profit margins (under Murabaha) and participation shares (under Musharaka), in addition to other demand-side measures during the 1990s. Among the qualitative measures, the most important from a poverty-reduction standpoint is that banks must ensure that the total amount of credit advanced to rural areas at any given time by any of their branches, is not less than 50% of the total deposits received from these areas.

The experience of both private and State-owned specialized banks suggests that the reform-cum-liberalization of the financial sector in Sudan has resulted in increased exclusion of the poor, both in agriculture and in manufacturing (UNDP, 2006). In fact, the Agricultural Bank of Sudan pulled out of Southern Sudan altogether.

Radical reform is needed in order to develop self-sustaining pro-poor financial institutions. In many parts of the world, micro-finance schemes have evolved as complementary means to widening access to finance by micro-entrepreneurs and the poor, especially women, who eventually contribute significantly to job creation and poverty reduction. However, the creation of micro-finance institutions does not obviate the critical need to enhance the role of specialized and development banks.

The central bank can provide a nominal a very low interest rate loans to the commercial banks who will be required to make credit accessible to the agricultural sector and the poor who are trying to building agricultural enterprises. NGOs can play a role in helping poor farmers to access these credits and build their productive assets.

In spite of its potential in theory, the Sudanese experience indicates that Islamic finance has not enabled more access to finance by the poor at lower costs than traditional banking. The problems are more associated with the structural features of the rural credit market than the mode of finance. (Besley, 1994) has argued that rural credit markets in developing countries differ from other credit markets. In the rural credit markets, the problems associated with collateral insecurity, underdeveloped complementary institutions and covariant risks are much more acute. In Sudan, this is exacerbated by the traditional rainfed agriculture.

## **8. TRADE, INDUSTRY AND POVERTY IN SOUTHERN SUDAN**

The impact of the liberalization of trade and industrial policy on poverty can be traced through its influence on: employment generation, factor and commodity prices, fiscal implications, and the extent of vulnerability to external shocks. As argued in (Dagdeviren and Mehran, 2004), the dismal performance of manufacturing industries in the 1980s and 1990s limited their capacity for employment generation and poverty reduction. They were concentrated in the urban areas and hence were less effective in reducing rural poverty.

Sudan's declining trend in international trade taxes in the 1990s resulting from trade liberalization had a serious negative impact on the government budget in general and on expenditure on education, health, and transfers to the poorer segments of society. The experience of trade liberalization in African countries underscores the need for proper tax policy responses and macroeconomic stability to contain the negative fiscal effects. When the market structure of agricultural exports is oligopolistic, as in most African countries, trade monopolies (not the producers) are the main beneficiaries of any increase in the price of exports resulting from trade liberalization (ECA, 2004).

The unimpressive performance of manufacturing can be attributed to political instability, supply-side rigidities and policy problems. Political instability and the civil war in the South drained enormous amounts of human, environmental and financial resources with a considerable social cost (Ali, 2004). With regards to supply-side rigidities, the policies and development efforts neglected the importance of infrastructure (power, water supply, and transport services). Acute shortages in these vital areas have persisted and, as a result, capacity under-utilization has remained a major problem for the manufacturing sector, irrespective of the trade regime (Dagdeviren and Mahran, 2004). The rate of capacity utilization during the 1990s is much lower than in the mid-1980s in almost all branches of manufacturing – cement and sugar are perhaps notable. As pointed out in (Dagdeviren and Mahran, 2004), the reason for unutilized capacity in some industrial units was the lack of action by the government for corrective policy measures.

Fertilizer should be regarded as a strategic commodity in Sudan, where the agricultural sector has been given a prominent role for poverty reduction. If the private sector is not forthcoming in investing in fertilizer production, then the government should take the initiative. It should distance itself from the dogmatic stance that prohibits its involvement in productive activities of a strategic nature "at any cost".

Investment in this area can achieve a number of objectives – notably producing fertilizers at a relatively lower cost (given the availability of inputs from the domestic petroleum sector), creating employment, enabling wider use of fertilizers in agriculture (particularly mechanized rainfed and traditional rainfed sectors), as well as saving on imports. This should enhance productivity and help to reduce rural poverty. In addition to supply-side rigidities, there are policy issues in a number of areas. Policy-induced acute scarcity and black-market activities have distorted resource allocation, particularly in critical areas such as foreign exchange and credit (Dagdeviren and Mahran, 2004). It is very common to see lots of currency dealers in the streets of the urban centers of Southern Sudan. One wonders where they get all the foreign currencies they trade with, and how and if the Bank of Southern Sudan has any records of currency dealt with in this manner. This must influence the money supply policy and have direct effects on monetary policy.

Other vital policy issues are that the regular flow of locally produced and imported inputs to the domestic industries must be given utmost attention. The availability of working and investment capital for manufacturing at reasonable rates has a crucial importance for the elimination of disruptions in the production process. Finally, efforts must be put in place to improve the skills of the workforce and quality and product design capacity in the industry. It is unrealistic to expect international competitiveness to be achieved and sustained through price incentives and devaluations without real improvements in productivity, quality, order processing and delivery.

## **9. STRATEGY POLICY RECOMMENDATIONS**

The real challenge facing Sudan is to sustain growth and macroeconomic stability, while undertaking an ambitious development plan. Prerequisites include: a sound and modern financial system; an efficient federal system through more decentralization, coupled with adequate financial and technical resources and participatory mechanisms; and a just income and wealth distribution. These can be achieved by implementing a set of strategies (UNDP, 2006): agricultural production; agricultural trade; agro-industrial development; physical infrastructure development; and financial (institutional) sector reforms.

### **9.1 Agricultural production strategy**

According to (UNDP, 2006), what the International Labour Organization (ILO) concluded more than two decades ago (ILO, 1987) is still valid in Sudan today: that although Sudan's comparative advantage was in

agriculture, its policies were biased towards large capital-intensive irrigation schemes and mechanized rainfed farms, and neglected providing public support to traditional rainfed farming and nomadic herding. Emphasis should be placed on a large public investment program that is concentrated on improving productive conditions in traditional farming and herding. Employment-intensive public works programs to build badly needed rural economic and social infrastructure should become the centerpiece of a pro-poor rural development policy. Many of these public works should be focused on small-scale infrastructure, such as storage facilities and rural roads, which could directly and immediately benefit poor farmers and herders.

## **9.2 Agricultural trade strategy**

Sudan should not forsake opportunities to export more agricultural commodities, such as cotton, sorghum or livestock, to the Arab region, Africa or elsewhere. Sudan's economy will continue, for the foreseeable future, to be decisively influenced by its ability to export agricultural products, in addition to oil. Whatever Sudan can do to add value to these primary commodities will be helpful. Exporting processed agricultural products could contribute to the diversification of Sudan's exports and its manufacturing base.

## **9.3 Agro-industrial strategy**

The 1987 ILO report also notes that much of Sudan's manufacturing sector produced only few processed goods for export, and produced very few wage goods for the large majority of Sudanese people. As a result, manufacturing became very import-dependent and focused on a small domestic market of rich consumers. (UNDP, 2006) suggests that Sudan's industrial strategy should focus more on small- and medium-scale urban and rural industries that have linkages to agriculture – that is, backward linkages such as the processing of agricultural commodities and forward linkages such as the supply of agricultural inputs. It should maximize the newly acquired oil advantage for producing fertilizers. Food processing is a major example of such an industry. Such agro-industrial activities would be less import-dependent than average activities, and hence would have a higher multiplier effect on the rest of the economy. But they would still be dependent on the provision of public infrastructure, such as energy, water, transport, and communication – the lack of which has constituted a major roadblock to industrial development. Providing such infrastructure, some of it necessarily large-scale, would be another component of a comprehensive public investment program stimulating poverty reduction.

## **9.4 Physical infrastructure strategy**

Developing public works that focus on stimulating broader agricultural and industrial development will stimulate the employment-intensive construction industry and provide temporary employment to large numbers of Sudanese workers. In addition, policies advocated here for broad-based agricultural and industrial development will be pro-poor, as they generate more permanent and widespread increases in employment. Such employment will provide incomes that are significantly higher than current levels to large segments of the workforce – namely, incomes that are high enough and sustainable enough to substantially reduce poverty. As formal-sector employment at decent incomes becomes more widespread, poor workers will move, of their own accord, out of the low-paying urban informal-sector employment. Also, the increased agricultural prosperity that is generated in rural areas will create broader non-farm employment opportunities that will help to supplement low farming incomes.

## **9.5 Financial/Institutional strategy**

Although public investment is crucial for growth and employment generation in Sudan, it can only solve part of the problem. Additional resources will be necessary and these must come from the financial sector. Banking regulations need to be reformed to induce commercial banks to lend for long-term private investment. As in many other countries, financial liberalization in Sudan has not led to more lending to productive activities. Also, publicly owned, development-oriented banks need to be empowered to mobilize domestic savings to lend to small-scale entrepreneurs.

The traditional anti-poverty interventions that are focused on poorer and more vulnerable workers, such as microfinance or micro-enterprise, will be an integral part of the broad pro-employment development. However, such focused interventions alone cannot generate the broad-based employment opportunities that contribute to sustainable poverty reduction. General economic policies need to be reformulated

in order to sustain more rapid economic growth, broader employment generation and deeper poverty reduction. Part of the strategy involves more expansionary fiscal policies focused on mobilizing domestic and external resources for ambitious public investment programs. Small-scale poverty-focused infrastructure projects, especially in rural areas, are part of this strategy – but so are large-scale infrastructure projects that are designed to connect the far-flung reaches of such a large country to a common transportation, power and communications network (UNDP, 2006).

## 10. POLICY ACTION RECOMMENDATIONS

A growth and poverty-reduction strategy should allocate more resources to investment and development projects, which broaden the productive capacities of the economy and create employment opportunities for the poor and the unemployed labor force. Agricultural projects in the irrigated, rainfed and livestock sub-sectors should be prioritized. Public works' projects to build infrastructure – particularly roads, small dams, ducts, and so on – could generate high rates of return through externalities. The adoption of appropriate technology, know-how and the enacting of techniques and practices, as well as the use of highly productive seed varieties and effective organization and administrative methods, should be adapted and generalized in agriculture. With regard to manufacturing, textiles, tanneries and oil seeds industries should be encouraged and investment in them should be increased to generate more employment for the unskilled and semi-skilled. These industries are either non-existent (as in the case of Southern Sudan) or are currently working at very low capacities. They need a life-saving strategy to use their resources more efficiently, reduce the costs of production and raise the productivity of labor and capital to raise profitability. Several policy actions are recommended by (UNDP, 2006).

### 10.1 Collect relevant information

The first important task for poverty-alleviating policymaking for Sudan's economy (agricultural and rural development and manufacturing) consists of setting up a system of generating information for the sectors. The principal task is to institutionalize regular surveys of household income and expenditure, possibly expanded to cover basic information concerning costs and returns of household farms and non-farm activities; an agricultural census (possibly beginning with a quick sample-census) covering both cropping and livestock; and a labor force survey.

### 10.2 Institutional reform

Institutional reform in irrigated agriculture should be carried out on two distinct fronts. Public and private owners of large irrigation projects should convert themselves into managers of irrigation and divest themselves of all farming operations. These schemes should be converted into agencies maintaining the irrigation system, expanding them where necessary and selling water at an appropriate price to ensure its best use. They must cease to operate as gigantic farms that integrate irrigation with the management of farm production through lease contracts with tenants that are subject to crop rotations and input decisions centrally imposed. Secondly, tenant farmers should be converted into fully-fledged entrepreneurial peasant farmers who make all decisions concerning cropping pattern, technology and output disposal.

Tenant farmers must be given full control over land and other resources that are necessary to enable them to be truly entrepreneurial peasants. The question of land rights is a thorny issue in Sudan – and will have to be reformed. The tenants should be given enough rights to enable them to function as peasant farmers. However, caution needs to be exercised in creating a fully-fledged market for land, as it could lead to a polarization of ownership and increased inequality.

The need for reform is nowhere clearer than in *mechanized rainfed* agriculture. It needs to be determined if, indeed, efficient economies of scale, dictated both by mechanization and by the condition of land under this form of cultivation, require the size of leasehold to be as large as it actually is. *A priori*, this appears most unlikely. Secondly, leases should be auctioned, under an expanded market of potential leaseholders created by the provision of credit, to ensure that land is being used most efficiently. The GOSS should not go along the old failed actions of large-scale government plantation schemes. Large-scale commercial



farming should be left to the private sector. This includes such farms as prison farms. Elsewhere in the region, prisons farms have done well in allowing prisoners to produce their own food and generating some revenue to supplement government support to prisons at the expense of the tax-payers.

Government production schemes have not been efficient in the past. This applies to sorghum, coffee and so on. Where there was some success, there was huge donor support. This included the Awiel Rice Scheme, the Upper Talanga Tea Project, the Imatong Mountain Forest Project, and the Gilo Potato Project. But as soon as donor support ended, most of the success of these projects also ended.

Despite the good performance of the traditional rainfed sector in the 1990s and the fact that improvements in the rural farm sector hold the best outlook to improve household food security, and the status of women who are the chief custodians of rural agriculture, the policy of the government has centered on the development of semi-mechanized farming and irrigation. In 2001, irrigated and the semi-mechanized sub-sectors absorbed 99% of agricultural credit and most funding for infrastructure and support services development. The traditional rainfed sub-sector, which supports the bulk of the population, received only 1% of agricultural credit (IMF, 2002). In 2001, the shares of mechanized rainfed farming and the irrigated sector in GDP were 1.1% and 13.2%, respectively. The share of the traditional rainfed sector was 6.3%. In 2002, the shares of mechanized farming and the irrigated sector in GDP were 1.3% and 12.7%, respectively. That of the traditional farming was 8.1% (Bank of Sudan, 2003). This policy, coupled with the government mandate of crop area, has been shown to be inefficient in the 1980s (Guvele, 2001).

Sudan's semi-mechanized rain-fed farming has less positive impact on food security. Although it has been known to provide employment for hundreds of migrant laborers, most of whom are women and children, the employment intensity is less than in the traditional rain-fed sector. Most of the inputs are import intensive. This further reduces its potential to be an engine of national economic growth. The profits accrue to a few, already very rich, commercial farmers (Ajawin and Waal, 2002).

In the 1970s and 1980s, growth in mechanized farming was at the expenses of the poor traditional farmers and the environment. Small farmers were dispossessed of their land, which was then plowed, and they were forced to labor in the farms for a reservation wage. There were very high market distortions in mechanized farming; and subsidies for fuel and inputs. Commercial farmers can also obtain large areas very cheaply as assessment of land value is poor. Commercial farmers are not obliged to maintain soil fertility and usually leave the land worse after their lease expires. Mechanized farmers have the state and parastatal marketing services at their disposal (Ajawin and Waal, 2002). Although the irrigated sector has traditionally played an important role in export earnings, it has lost that potential. Moreover, like mechanized rain-fed farming, it is highly import-intensive. Hence the future of agricultural security lies in traditional rain-fed farming, which is dominated by women (Guvele, 2007).

By focusing on the promotion of the traditional farmers, agricultural development in Sudan will combine growth with poverty reduction, because most of these farm households are poor. The process of converting them into productive peasant entrepreneurs must begin by endowing them with basic rights to land. This right, designed with due care to protect the necessary elements of the role of the tribal and community organizations, will expand the access of the traditional farmers to credit and other resources – once the complementary reforms are implemented.

### **10.3 Find new rules in agribusiness**

Domestic research capability needs to be created in the adaptation of seeds that have been developed elsewhere for uncertain and inadequate rainfall, which characterizes much of Sudan's agricultural area. This needs to be complemented by the creation of a system of supply and marketing of seeds, fertilizers and pesticides that ensures the availability of these inputs at competitive international prices. Improved input supply should be backed by an enhanced access to credit – especially in the traditional rainfed sector. The *shail* and *salam* modes of finance work to the advantage of the money-lenders and deprive agricultural producers of the fruits of their toil. At the moment, the access of the traditional farmers to credit is dismally low or nonexistent, as in most of Southern Sudan.

The implementation of institutional reform proposed above should help mitigate the problem of a lack of collateral. This needs to be backed by a banking infrastructure that is geared to serve small borrowers. In this regard, the Agricultural Bank of Sudan has to be re-designed to be a true development finance institution.

All banking institutions operating in Southern Sudan are targeting the more lucrative housing market. A tent or a pre-fabricated room goes for at least US\$100 a night in the Tent-Prefab City enclave along the Nile River. Unfortunately, most of the profits find their way out of Southern Sudan.

One of the most fundamental changes taking place in Southern Sudan after the CPA is the influx of foreign organizations, and domestic organizations that had harbored in the neighboring countries. With this influx, there has also been a rush flow of cash into the Southern Sudanese economy at levels that the system has never experienced before. This has generally been well received. However, there are characteristics of this flow that pose a threat to food security in Southern Sudan and poverty reduction.

There are signs that financial power of the local population is being weakened because of the international salary levels that currently dominate in Southern Sudan. Prices of room and boarding are unrealistic given the circumstances of Southern Sudan. There are signs that a “Soweto economy” may emerge in many of the cities of the area. The flow of better processed, packaged and branded foods from East Africa has literally driven the farmers’ produce to the shadows of the emerging commodity market system in Southern Sudan, with serious implications for farmer’s income levels and livelihood in the region (Guvele, 2007).

#### **10.4 Tackle Dutch Disease**

The vulnerability of Sudan to Dutch Disease should not be underestimated, particularly in light of the expected large foreign exchange inflows in the post-peace era. Revenues should be channeled from the booming oil sector to stimulate non-oil production and exports, mainly to the agricultural sector where most of the poor live. The relatively low and declining development expenditure implies negligence of the productive sectors of the economy – particularly those producing tradables. Easy oil money may eliminate the incentive to develop alternative tax bases and/or improve the existing ones – thus fuelling destructive rent-seeking activities. Such a possibility should be avoided at all costs.

#### **10.5 Invest in manufacturing**

New investments in employment-generating projects in agriculture and industry should become a priority. Investment in agriculture manufacturing is a certain way to raise factor productivity, produce wage goods, secure stable input supplies to manufacturing, expand productive capacity of the economy, and generate employment for the unskilled rural poor. The general policy implications for manufacturing of the foregoing analysis are the following:

1. Investment in infrastructure – especially the transport network, power and water supply – must be given priority in the allocation of public investment expenditures;
2. The regular flow of locally produced and imported inputs to the domestic industries must be given utmost attention;
3. Availability of working and investment capital for manufacturing at reasonable rates has a crucial importance for the elimination of disruptions in the production process. A system of finance that is more conducive to industrial development has to be devised; and
4. Improve the skills of the workforce and quality and product-design capacity in the industry.

There is great potential to improve or add value to the agricultural products of Southern Sudan. Two examples will demonstrate this. Southern Sudan boasts vast teak (*Tectona grandis*) plantations mainly used for furniture. It was common to hear the argument that development in the South would be financed by the teak forests. It should, however, be noted that the value of a cubic meter of timber from the existing teak plantations (about 94,000 feddans or about 40,000 ha) of Southern Sudan is four to five times below the value of a similar product from Asia. The plantations have not been managed. Hence, the best value for trees is the domestic utilization of the timber. Southern Sudan needs billions of cubic meters of timber to construct infrastructure and furniture. Building local rural capacity to begin to utilize this resource is an excellent policy.

GOSS recently spent millions of dollars to purchase wood-dust-based furniture from overseas for its offices. Most of these funds could have gone towards improving and establishing wood workshops, such as those of Kagelu, and training workers to produce such furniture. Southern Sudanese teak, which has a lower value overseas, would have been better used to increase rural employment and to reduce poverty.

Another prominent resource mentioned in Southern Sudan is livestock. Most of these livestock are kept in the traditional pastoral systems. Little value is added. (Guvele, 1999) showed that the value weight margins of the cattle from Southern Sudan in the Ugandan markets were very low.

### **10.6 Create rural employment opportunities**

The small share of direct transfers to the States highlights the need to increase State transfers for broadening the productive capacities in the economy. This should be done through investment in a large number of labor-intensive projects that provide critically needed jobs for the poor. The creation of employment opportunities such as described above will reduce the numbers of the poor, strengthen aggregate demand and induce investment in productive sectors of the economy and therefore enhance the rate of growth of GDP.

A Governors conference in Juba in 2007 clearly spelled out the priorities of the States of Southern Sudan. It also identified the States that needed most urgent help. Hence, knowledge is abundant about what needs to be done. It is the required action that is not being taken.

### **10.7 Reform the tax system**

The derived value from indirect tax incentives used in Sudan (in the form of exemptions on raw materials and capital goods from VAT) is doubtful, as indicated by the experience of other developing countries. Recipients and beneficiary groups often abuse them when the exempted goods are not used in the manner intended by the incentive.

Another challenge facing Sudan is to broaden the tax base and have a higher tax level, comparable to that in developing countries, to enable the government to provide essential services (education; healthcare; environmental protection; reliable sanitation services; efficient infrastructure projects; and support programs for mothers, children, and the elderly).

A comprehensive tax reform is highly needed if a viable fiscal policy is to play a fundamental role in enhancing macroeconomic stability and economic growth. One possible alternative for the government is to depend more on direct taxes, but without producing an economic disincentive to income earners or causing a flight of financial capital. Given the positive characteristics of direct taxes (income and profit taxes), the government of Southern Sudan may improve the situation and achieve pro-poor growth by relying mainly on direct taxes instead of indirect taxes. In response to an increase in demand for its services and in conformity with fiscal-balance requirements, the government may do well to rely on generating more revenue through taxes that have higher income elasticity. A progressive personal income tax can be a good tool for income distribution in favor of the poor. It is simple, and can generate substantial revenue for the federal government. In addition, the incidence of the income tax rests with the taxpayers and is not shifted forwards or backwards.

Sudan, like most LDCs, used incentives to promote investment. Such incentives are probably justifiable in cases of investments that generate externalities to the economy at large, such as in technology-intensive industries, skill-intensive industries, advanced research and educational projects, and targeting the regional development needs of the country. Another type of exemption, which is often given to foreign investors, embedded in most investment acts and which has caused considerable problems, is the tax holiday. Such holidays are criticized on many grounds – mainly, they give a strong incentive for tax avoidance. Therefore, the GOSS should stop offering them as incentives for encouraging foreign investments in Southern Sudan. As long as the revenues generated from these taxes are transparently declared and are used for infrastructure development and service delivery, tax-payers will realize their long-term benefits.

### **10.8 Increase pro-poor expenditure**

The central government in Sudan has been systematically following patterns of spending that have not benefited poor people. Spending on administration (Chapter II) and debt services payments and financing the war in Southern Sudan consumed a disproportionately large share of total government spending, whereas social subsidies that directly benefit the poor, for example, received a very small share of total spending (3.7%) during the period 1998–2001. Furthermore, the direct transfers to States as a ratio of total government spending has been very small, indicating that fewer resources have been transferred to support States to cope with their rising obligations to provide essential social services (education, health, water and sanitation, etc.). The government should allocate more resources to the States in its effort to eradicate poverty in the country, as that could also redistribute resources in favor of the poor regions and enable them to spend more on the pro-poor projects and services. As if by dictation, GOSS has followed the same path of spending, disregarding the reasons for which the founders of GOSS went to war with the North.

The share of Chapter I expenditures in total federal government expenditures has also constituted a small ratio in total government expenditures. Although the rising share of this chapter points to a negative involvement of the government in the economy, in situations where poverty is widespread, the government should allocate more resources for employment generation, using this Chapter as well as Chapter IV (development expenditure). The increase of the shares of these Chapters (I, III, and IV) is critical for broadening the productive capacities in the economy through undertaking new investments in labor-intensive projects that provide critically needed jobs for the poor.

On the expenditure side, pro-poor spending should target some specific areas and activities whose spending incidences are in favor of the poor people. Poverty is caused (among other things) by a lack of: opportunities, job creation, targeting credits for small producers, building of roads, small dams, water points, provision of affordable electricity, building of schools, availability of clean and healthy water, supplying sanitation services, and securing essential health and education services. These issues are all extremely critical for eradicating poverty in the Sudan.

### **10.9 Increase expenditure on support programs**

The government should also allocate adequate funds to reduce the vulnerability of poor producers arising from difficult circumstances – namely, unemployment, natural disasters (floods and droughts), economic crises, harvest failures, etc. This is essential in view of the fact that, for the average farmer, the income from work outside of agriculture is very low. Diversifying income sources will undoubtedly assist farmers in reducing the risks and costs of fluctuations in agricultural output and income. In addition, reducing the risk of epidemics or diseases (HIV/AIDS and malaria, etc.) via public health programs should be top priority in spending for the poor. The provision of these services to women, children and the elderly can no longer be viewed as a privilege. It is a right.

### **10.10 Increase expenditure on human resource development**

There is an urgent need to undertake an institutional reform for all the GOSS ministries. For example, in the Ministry of Finance, one major area of need is developing the expertise and technical capacity to carry out functional classification of the expenditures. This is essential in order to improve quality of data, and to have a detailed functional and economic classification of expenditures. On the other hand, more emphasis on improving public resource management is needed. Developing effective mechanisms to monitor and control revenue generation and government spending at all levels, and with greater public accountability, is important for poverty-reduction strategy. Hence, manpower recruitment and training should take place in all the ministries and commissions.

### **10.11 Reduce debt**

The Sudan is also in critical need of solving its formidable problem of external indebtedness. The country's external debt (more than \$23 billion by 2002, representing more than 150% of GDP) is accentuating financial and fiscal problems, and depriving the country of critically needed resources to provide essential

social services and to undertake productive pro-poor investments in many sectors of the economy. External debt overhang will discourage private foreign investment in non-oil sectors by reducing the expected return on capital, after tax rate. Sudan is still waiting to benefit from the Blair Committee Initiative and the HIPC (Heavily Indebted Poor Countries) strategy to reduce substantially or write off its external debt after signing the peace agreement with SPLA/SPLM.

### **10.12 The special place of fertilizer**

Fertilizer should be regarded as a strategic commodity in Sudan, where the agricultural sector was given a prominent role for poverty reduction. If the private sector is not forthcoming in investing in the production of fertilizers, then the government should take the initiative. It should distance itself from the dogmatic stance that prohibits its involvement in productive activities of a strategic nature. Investment in this area can achieve a number of objectives: saving on the import bill; producing fertilizers at a relatively lower cost given the availability of inputs from the domestic petroleum sector; creating employment; and enabling a wider use of fertilizers in agriculture (which should enhance the productivity and help to reduce poverty).

### **10.13 Improve the terms of trade**

Deterioration and fluctuations in the terms of trade of the agricultural exports is a source of instability. This, coupled with the fluctuations in agricultural output due to external factors, reduces the reliability of a strategy that is based mainly on agricultural development. Diversification of production in the manufacturing sector is essential for economic development and improving the terms of trade for the country.

### **10.14 In general**

So who and where are the poor in Southern Sudan? Everywhere you go and look in Southern Sudan, there is poverty.

- Poverty of governance
- Poverty of health
- Poverty of education
- Poverty of infrastructure
- Poverty of food security
- Poverty of economic policy
- Poverty of financial policy
- Southern Sudanese poverty is flamed by its abundant resources.

The way forward is to understand this poverty better by analyzing it using modern techniques. The way forward is to lay down specific strategies to deal with it. The strategies should be in the areas of agricultural production, agricultural trade, agro-industry, physical infrastructure, and financial and institutional strategies. Specific actions need to be taken, from information-gathering and analysis to improving the terms of trade. However, what should be lamented is that the GOSS has not adequately demonstrated that it aims to fight poverty. Its two first budgets (2006 and 2007) are generally anti-poor. Unless this changes quickly, the poor will continue to dominate Southern Sudan.

## **11. POVERTY IN SELECTED AREAS IN SOUTHERN SUDAN**

As mentioned in the introduction, quantification of poverty is enabled through data collected via a questionnaire conducted in three areas (States) in the South. This and the following sections provide an account of poverty and poverty-related aspects gleaned from the survey.

### **11.1 Survey methodology**

Unlike the case in Northern Sudan and due to scanty information in the South, the intention was originally guided by ambitions to cover all agro-ecological zones of Southern Sudan in the survey. Southern Sudan is divided into seven such zones:

The Green Belt along the Ugandan-Democratic Republic of Congo borders, stretching from Magwi, Kajokeji, Yei, Morobo, Lainya to Tombura.

The Central Hills Zone stretching from south of Juba to Terekeka-Tali areas, part of Lainya, Mundri and Mvolo Counties.

The mountain ecological zone mainly formed by the kinyeti and Imatong mountain ranges along the eastern Equatoria-Uganda borders.

The ironstone plateau that occupies a huge chunk of Southern Sudan extending from parts of Maridi, Mundri, Tonj, South Wau to Raja, which borders the Central African Republic. The flood plains, which are expansive lands on the banks of the Nile and its major tributaries such as River Kiir (Bahr el Arab), where the plains are subjected to annual floods. Because of the huge quantities of clay deposited on these plains over hundreds of millions of years, the soils here are some of the most difficult to cultivate in the world.

The Sobat-Nile Corridor. This is a low-lying plain along both sides of Sobat River, which are subjected to annual floods.

The Sudd, which is the largest swamp area in the world, occupying the central parts of the flood plains extending just north of Juba to the confluence of the Nile (which split into three or more tributaries before they join the Kiir River flowing from the west and the Sobat River flowing from the Ethiopian highlands). Due to the uneasy infrastructure in the South, it was thought to reduce these seven ago-ecological zones to four, namely:  
 The Green Belt.  
 The Central Hills and Ironstone Plateau.  
 The Mountain ecological zones, and  
 The Flood Plains.

However, further difficulties in movement during the rainy season, and funding and time limitations, have posed additional constraints that induced going State-wise and confining the data collection to three States, namely the Eastern Equatoria State (EES), the Central Equatoria State (CES), and the Lakes State. From each State, one county was selected, with the result that the counties of Magwi from the CES, Juba from the CES, and Rumbek from the Lakes were selected. From each County, several Payams were randomly selected, whereas randomization was performed for the selection of Bomas, as well as households, whereby a sample of 40 households was allocated to each county. It is to be noted that, while sampling in the EES and the Lakes State was rural-based, the CES (Juba) was strictly urban. The selection procedure is shown below:

The survey was conducted using a structured questionnaire similar to that used to collect household data from the North (see the part on Poverty Assessment in Northern Sudan), and (Table 2).

Table 2: Structure of the samples in the three states

	Counties	Payams	Bomas
Esten Equartorial State	Magwi	Pageri, Magwi, Palwar	Lao, Kerepi, Pageri, Obbo
Central Equartorial State	Juba	Munuki, Rajaf, Kator, Juba	Gudele, Bl.A, Kuweit, Bl.C, Gudele, Mugoro, Gumbo, Kator, Malakia, Lologo, k.Esat, Jalaba, Gabat, Commercial, Orselim, D. Line, Juba na Bari, Atlabara
Lakes	Rumbek	Mayom, Matangai, Pacong, Paloch, Jiir, Raloch, Madol, Atiaba, Amongpiny, Malek, Akuac, Palong, Malakia, R.town, Amongpiny	Mabor Ngap, Adol, Mathiang, Golkou, Cucicok, Abinajok, Golkou, Makoi.V, Malakia, Muopeer, Malual Akan, Acho town, Nyanycot, M. Akoc, Apaat, Cuik-cok, Makuriric, Rakayen, Amokpiny, Wutabiei, Akoljal

## 11.2 Analytical framework

We may recall that the first Millennium Development Goal (MDG1) is to eradicate extreme poverty and hunger. The main target under this goal is to reduce the proportion of people living in extreme poverty (living on less than US\$1.08 per person per day) to half by the year 2015. As is well known, the proportion of people living in extreme poverty is the head-count ratio, whereas the income level of US\$1.08 per person per day is the poverty line. Three indicators have been selected to reflect progress in achieving this target. These include the head-count ratio itself (the incidence of poverty), the poverty-gap ratio (the depth of poverty) and the relative deprivation ratio (the severity of poverty). All three indicators are considered to be consumption-based poverty indicators. For the three poverty indicators, poverty studies should set precise quantitative geographical targets to be achieved by the year 2015, starting from their initial values in 1990, and continue to assess the progress towards them.

The assessment of the progress towards the Millennium Development Goals (MDG1) on poverty in developing countries has, so far, been conducted in the context of an analytical framework based on various approaches to the measurement of poverty. In this respect, three broad approaches to the measurement and study of poverty can be distinguished. The most widely used approach is the quantitative, money-metric, approach. This approach looks at the issue of poverty in the context of welfare comparisons, where welfare is defined on the basis of income or consumption expenditure reflecting the standard of living enjoyed by individuals. This is the approach used in measuring food poverty in the four selected areas in Northern Sudan and is used here for the three selected areas in Southern Sudan. The second approach is that of capability, which broadens the concept of the welfare of an individual to include fundamental human choices, in addition to the commodity dimension of welfare (see, for example, Sen, 1981; Sen, 1999). The third approach is one that searches for the meaning of poverty by asking the poor themselves and is known as the participatory poverty assessment approach (see, for example, Chambers, 1994; Chambers, 1997).

Despite the richness of the capability and the participatory approaches, this study is based on the money-metric approach to the measurement of poverty for two good reasons. First, the money-metric approach has already been used for Northern Sudan and, for consistency purposes, the same approach would be used for Southern Sudan. Secondly, the MDG1 on poverty in developing countries has been formulated in terms of this approach. As is probably well known, a huge body of technical literature has accumulated on the measurement of poverty under this approach.

Under the money-metric approach, the first step taken towards measurement is to agree on a relevant measure for the standard of living. A relevant standard of living for developing countries is per capita consumption expenditure (including the consumption of own production). In advanced countries, this is income that is taken as the relevant measure of the standard of living. Given agreement on the measure of the standard of living, there are a number of methods to determine the threshold of deprivation below which a person can be identified as poor. This threshold is commonly known as the poverty line.

## 11.3 The food poverty line for the South

Although there are a number of methods for determining poverty lines, the most widely used, and preferred, method for developing countries is that of the cost of basic needs (CBN). This method involves identifying a typical diet for the poor that is necessary for leading a healthy life. Healthy life is defined in light of nutritional requirements using WHO and FAO nutritional recommendations (recommended daily allowances of 2500 calories per adult per day). The 2500 calorie figure was, however, adapted to the Sudanese conditions (Sudan census data) to arrive at 2200 calories used in the analysis. Required quantities of the goods supplying the required calories are appropriately priced to arrive at a monetary value defining a food poverty line. By adding to this amount the cost of other requirements needed by individuals to live in a social context (e.g. the cost of clothing, shelter, education, and medicine), an overall poverty line can be estimated. This is exactly the method used to compute poverty lines for the four selected areas in Northern Sudan, simply because it was possible to prescribe a poverty food basket that supplies the recommended daily minimum nutritional requirements and collect food prices for each of the four selected areas.

Unfortunately, it was not possible to construct a food poverty line for the South using the same methodology because the survey data of the South, as well as being problematic, lacks a prescribed poverty food basket that reveals the food habits of the people of the south and enables the derivation of the daily minimum nutritional requirements per person per day. One short cut to a poverty line for the south where there is no prescribed poverty food basket is the use of the \$1 dollar per person per day as a money-metric value of the daily minimum nutritional requirements per person. Part of the analysis did, in fact, consider this approach (see earlier sections). But it can quickly be noted that the international debate on poverty has been conducted in terms of a fixed poverty line (e.g. \$1 dollar per day) applied to all countries and over time. However, there is now increasing realization that poverty lines should vary among countries depending on the level of development and among regions within the same country depending on the regional habits of food consumption and the regional levels of food prices. This is tantamount to saying that, in general, the poverty line will be expected to be an increasing function of the standard of living. Indeed, allowing the poverty line to change with the standard of living is more sensible and has been the practice in Europe – in contrast to the practice in the US, where the poverty line was held fixed for a long period of time.

Now, in order to capture the variations in the habits of food consumption and food prices among the three selected areas of the South in our poverty analysis, and in the absence of a prescribed poverty food basket, we are only obliged to take a thorny lane to arrive at the construction of a poverty line for each of the three selected areas of the South based on the daily minimum nutritional requirements recommended by the WHO and FAO. The first step along that thorny lane is the use of the set of data on itemized household food expenditure derived from the survey for each of the three selected areas. The second step involves the division of the household expenditure of each food item by an estimated corresponding food price to arrive at the quantity of that food item consumed by the household. The third step involves the conversion of the quantity of each food item consumed by each household in each of the three selected areas into calories using Sudan Food Composition Tables. The fourth step involves the division of household expenditure per each food item by its calorie contents with the view to compute the cost per calorie. The sixth step involves the computation of the average cost per calorie for each of the three selected areas of the South. The seventh and final step is the multiplication of the average cost per calorie in each selected area by the daily minimum nutritional requirements (2200 calories per adult per day) based on the calorie recommendation by the WHO and FAO per person. The final result of this cumbersome – yet, neatly completed – bit of the research is the money-metric value of the daily minimum nutritional requirements (the food poverty line) computed for each of the three selected areas of the South.

#### **11.4 Construction of a welfare distribution for the South**

Having computed a proper nutritionally based food poverty line for each of the three selected areas, we are left with the construction of a welfare distribution in which welfare levels of both households and individuals are comparable. As income and/or consumption expenditure are the only observable and measurable welfare indicators, data pertaining to household income and expenditure are needed for the construction of a welfare distribution. This data is obtained by the household budget survey conducted in the three selected areas of the South. Now, to construct an income or a consumption expenditure distribution that allows for welfare comparability among households and individuals, there is a need to adjust household income or expenditure for variations in household head-count size and household characteristics. For this purpose, an adult equivalent index was constructed based on the WHO nutritional requirements by age and sex. Applying this index enables the conversion of females, adolescents and children into fractions of an adult man. Thus, the head-count family size is converted into an adult equivalent. As such, the distribution of the household per capita income and/or expenditure adjusted for variations in household composition is the one that allows for welfare comparability among households and individuals.

#### **11.5 Poverty measurement**

Now, having resolved the two fundamental research issues of the welfare distribution and the poverty line, the aggregate measures of poverty involves anchoring the poverty line on the welfare distribution to split the sample population discretely into poor and non-poor. Therefore, an immediate measure of



poverty is the ratio of the poor thus identified to the total population in a given society. This is the well-known head-count ratio. It is the most widely used, and easily understood, measure of poverty. Thus, for example, the Millennium Development Goal on poverty is to reduce the head-count ratio to half its level of 1990 by the year 2015. The head-count ratio measures the spread, or incidence, of poverty in a given society. Another useful poverty measure is the poverty-gap ratio, which takes into account the extent to which consumption of the poor falls below the poverty line. It measures the depth of poverty in a society. Using the head-count ratio and the poverty-gap ratio together, one can immediately obtain the average income of the poor. As is well known, these two measures are special cases of a general class of additively separable poverty measures. (The Foster–Greer–Thorbecke, 1994), FGT, measures of poverty are described in detail in Part 2 of this report.

**11.6 Socioeconomic characteristics of households**

The family size over the whole sample in the three States averaged 8 members, 78% of whom are core family members, whereas 22% are considered to be part of an extended family. This indicates that families are formed in their high majority of core families but the presence of extended families implying high dependency is sizeable. Although still existing, dependency has probably been limited by prevailing difficulties in livelihood.

(Table 3) depicts that the family size is higher in the Lakes State, followed by the CES, whereas the smallest family size is seen in the EES. There is a substantial balance between males and females, but with a tendency of females to outnumber males in the CES and the Lakes State. Such family patterns are probably connected to the conditions of war that are expected to vary in different parts of the South. Characteristics of the household head in the three States are depicted in (Table 4). The high majority of households are headed by males, but female-headed households are substantial in the EES in spite of the lower percentage of females there, where farming is the predominant occupation.

Table 3: Average composition of household members in the three States

Item	Central Equatoria State	Eastern Equatoria State	Lakes State
No. of Household Members	8.1	6.7	8.8
No. of Males	4.0	3.5	4.1
No. of Females	4.1	3.2	4.7

The average age of household heads was 44–47 years, indicating a rather young population and, accordingly, substantial possibilities for engagement in economic activities. Literacy among household heads is quite high in the CES, modest in the EES, and clearly low in the Lakes State. This reflects the nature of their occupation, where more than half of the household heads are engaged in office opportunities in the former, whereas they undertake farming or activities of a similar nature in the other two States. It is worth mentioning that none of the sampled households is occupied in farming in the CES. Membership in local organizations is extremely high in the EES (95%), which is explained by their partnership in multi-purpose cooperatives, trade and agriculture-related organizations, given the high dominance of agriculture work in the State. Likewise, the low participation in the CES might be related to the high dominance of office occupation. In all, the derived characteristics of the household head might have connotations for the poverty status in each region.

Occupation at the household level is better analyzed considering active household members. According to the collected information, the household head and the first and second dependents are engaged in economic activities at varying levels. Compiled data on their employment status in the three States is summarized in Table 5. One striking feature is the high level of unemployment in all States, ranging from 20% to 48%, with extremely high levels in the Lakes State.

Employment in agriculture is highest (close to half of the cases) in the EES, but also considerable in the Lakes State. The bulk of the active population in the CES is engaged in official work. Jobs such as labor, trading and technical engagements are limited, although there are some unidentified activities, especially

Table 4: Characteristics of the household head in the three States

Item	Central Equatoria State	Eastern Equatoria State	Lakes State
Gender (%):			
<i>Male</i>	95	77	92
<i>Female</i>	5	23	8
Average Age (years)	47	44	46
Literacy (%)	75	53	22
Average schooling years	8.4	6.8	2.7
Main Occupation (%):			
<i>Farmer</i>		88	45
<i>Official</i>	53		8
<i>Laborer</i>	10		8
<i>Trader</i>		8	
<i>Unemployed</i>	25		5.0
<i>Other</i>	12	4	34
Membership of local organizations (%)	5	95	23

Table 5: Occupations of active household members (% of total households)

State	Farmer	Laborer	Official	Trader	Technician	Student	Unemployed	Other
CES	3.4	6.9	22.4	1.7	2.6	17.2	37.9	7.8
EES	48.3	3.3	2.5	2.5	4.2	17.5	20.0	
Lakes	25.8	2.5	2.5	1.7	1.7	5.8	47.5	12.5

in the Lakes State. The indication is that work opportunities outside agriculture and offices are narrow, resulting in high unemployment and suggesting vulnerability to poverty.

Some of the indicators of human poverty that have been monitored are the housing characteristics, sanitation, and drinking water sources. (Table 6) reveals that households remain disadvantaged as far as these amenities are concerned. Although house walls are predominantly made of mud or raw bricks, roofs are (in the majority of cases) made of grass, but approximately one-third of the households in the EES have iron-sheet roofs. Toilets are absent for 48–65% of the households, but pit latrines exist in 35–53% of the cases. The main water sources are boreholes and streams, rivers and rainfall – all of which might not be hygienic. Furthermore, 40% of the households in the EES have access to water from the river that is distributed by tankers, which is also non-hygienic. On the other hand, there are only a few cases where water pipes are available. The whole situation is indicative of income and human poverty.

### 11.7 Agricultural activities

Engagement in crop production is concentrated in the EES and the Lakes State (Table 7). Within the well-diversified range of crops grown in these two States, a high percentage of farmers are involved in growing groundnuts, sesame and sorghum, whereas growing millet is important in the Lakes State. Other crops of importance are cassava, sweet potatoes and beans in the EES, and maize in both States. Although the bulk of crops (sorghum, millet, cassava, sweet potatoes, maize, and beans) are mainly subsistence crops, groundnuts and sesame are primarily cash crops, although they also enter the diets of households, as will come later.

Table 6: Housing, sanitation and drinking water characteristics in the three States (% households)

Amenity	Central Equatoria State	Eastern Equatoria State	Lakes State
House roof:			
Grass roof	95	63	88
Iron sheets		35	15
House wall:			
Raw brick wall	65	15	35
Mud wall	33	68	55
Burned brick	5	5	8
Cement	3	5	
Sanitation:			
No toilet	55	48	65
Pit latrine	48	53	35
Water source:			
Water bore hole	85	50	83
Water wells			20
Tank d .w.		40	
Stream/river/rain	33	23	13
Pipe	10		

Table 7: Cropping activities in the three States (% of farmers)

Crop	States		
	Central Equatoria State	Eastern Equatoria State	Lakes State
Groundnuts	5	53	50
Beans	3	13	8
Sesame	3	58	33
Cassava	3	28	0
Sweet potato	0	20	0
Sorghum	15	65	55
Millet	0	3	35
Maize	3	15	18

Areas under crops for an average household are small (Table 8), reflecting a precarious food availability based on a household's own production and jeopardizing the household situation in terms of cash (access). That being said, average areas are higher in the Lakes State, with groundnuts and sorghum occupying relatively larger plots. In the EES, although the average area of millet is substantial, the number of farmers growing the crop is small. Beans and cassava are grown there in relatively larger plots. The CES can hardly be regarded as agricultural as both the number of farmers growing the various crops and the areas grown are low.

Animal-keeping is scarce among the sampled households in the CES but is significant in the other two States. In both the CES and EES, animal-keeping is confined to poultry and goats – 60% of the households in the latter own poultry and 55% own goats, with only one household owning two cows. In the Lakes State, 85% own animals – either poultry, goats, cattle or sheep. Taking into consideration the differences among the three States as far as the types of animals kept and the extent of animal rearing, (Table 9) shows the average flock sizes in each of the three States. Relatively more animal-keeping is obvious in the Lakes State, but goats and poultry are reared to a lesser intensity in the EES. Given this pattern, relatively more wealth, as well as food and nutritional security, would be expected in the Lakes State.

Table 8: Average areas (feddans) of the crops grown

Crop	States		
	Central Equatoria State	Eastern Equatoria State	Lakes State
Groundnuts	0.50	0.76	2.58
Beans	0.50	1.46	1.17
Sesame	0.50	0.67	1.15
Cassava	0.25	1.33	
Sweet potato		0.27	
Sorghum	1.00	0.86	2.98
Millet		3.00	1.50
Maize	0.25	0.13	1.21

Table 9: Average ownership of livestock by type in the three States

Animal Breed	States		
	Central Equatoria State	Eastern Equatoria State	Lakes State
Poultry	7.0	8.4	14.3
Goats	6.2	5.1	12.0
Cattle		2	29.9
Sheep			10.5

Agricultural production methods are predominantly traditional, with very limited use of improved technology. (Fig. 6) illustrates the extent of use of a range of improved technologies among farmers in the Lakes State, showing that only ox-plowing is followed to a substantial extent. Both mechanical plowing and pesticide use are non-existent, whereas small percentages of farmers use mechanical seeding and fertilizers. Furthermore, mechanical harvesting and improved seeds are used only to a minimal extent. However, the situation in the Lakes State is better than in the EES, where none of the farms used improved agricultural technologies to any large extent. Poor or non-use of improved technology will be expected to reflect negatively on yields, production, and household food security.

In addition to, and probably connected with, poor technology use, provision of agricultural credit is not a widely used practice. In the two States where agriculture plays an important role in livelihood – namely, the EES and the Lakes State – 37% and 11% of the households, respectively, had access to agricultural credit (Fig. 7). In the absence or during limitations in credit provision, technology is not expected to take off, especially given the poor status of the households. Crop yields are generally low (Table 10) but, except for maize, they are substantially higher in the Lakes State. Although compared to other rainfed parts of the Sudan, crop yields are generally higher, but they do not reach their potential given the region's high rainfall and fertile soils.

Table 10: Average yields (kg/feddan) in the Eastern Equatoria State and the Lakes State

Crop	Eastern Equatoria State	Lakes State
Maize	688	359
Sweet potato	562	
Cassava	188	
Sorghum	164	343
Groundnuts	103	184
Sesame	95	293
Beans	87	591
Millet	17	121

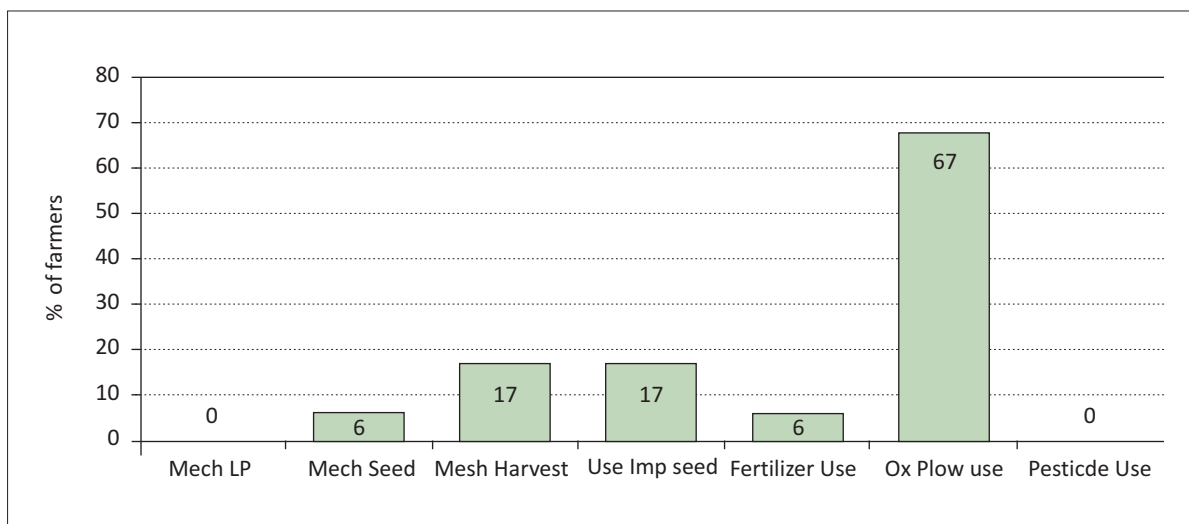


Figure 6. Percent of farmers (main occupation) using improved technology in the Lakes State

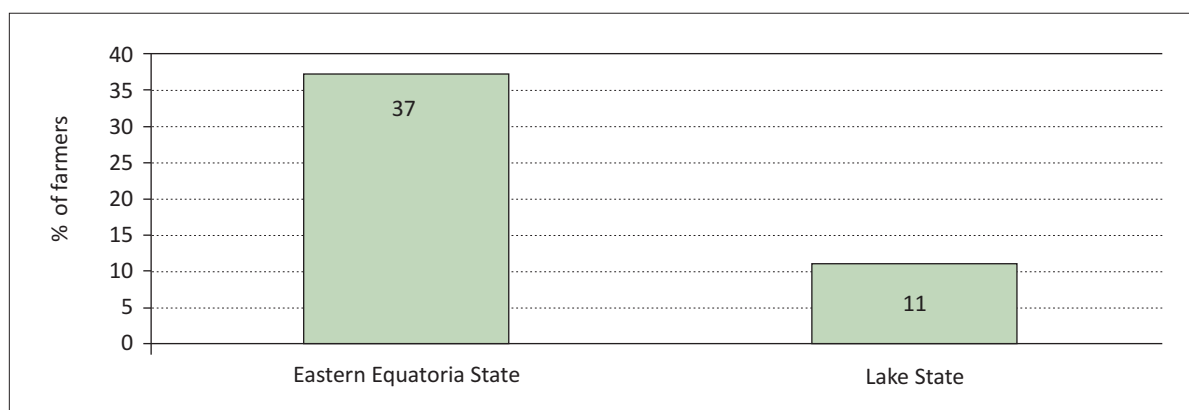


Figure 7: Farmers' access to agricultural credit in the Eastern Equatoria State and the Lakes State

The effect of technology can be revealed when comparing yields of farmers using ox-plowing with those of all other farmers in the Lakes State. Yield premiums of 41%, 93%, 12%, 35% and 14% were earned by the former group for groundnuts, sesame, sorghum, millet and maize, respectively. As this is only one technology component, substantially higher additional yields will be expected if more technology components are adopted.

### 11.8 Income poverty incidence based on the \$1 poverty line

Two of the most important income-poverty indicators are household/per capita incomes and expenditures. The major income sources identified in the questionnaire are crops, livestock, remittances, credit and non-agricultural income. Income analysis reveals that the average combined per capita per day incomes from these sources were SDG 0.30, SDG 3.19 and SDG 1.40 in the EES, the CES and the Lakes State, respectively. Assuming a \$1 income threshold per capita per day as a poverty line, the figures are indicative of extreme average income poverty in the EES, high average poverty in the Lakes State and an above poverty-line situation, on average, in the CES.

From the income distribution shown by (Fig. 8), and accounting for the variation in households' family size and assuming a poverty threshold of \$1 per day as a rule of thumb (equivalent to about SDG 2.4) in spite of its limitations, poverty incidence can be derived in each of the three States (quantitative poverty indicators are given in earlier sections). The income poverty incidence is 99.6% in the EES, 54.0% in the CES and 88.6% in the Lakes State. Obviously, poverty levels are high in the three States, but the situation is especially serious in the EES and the Lakes State. It is also to be noted that, given the high unemployment levels, many of the households are deprived of incomes at levels that sustain a minimum livelihood.

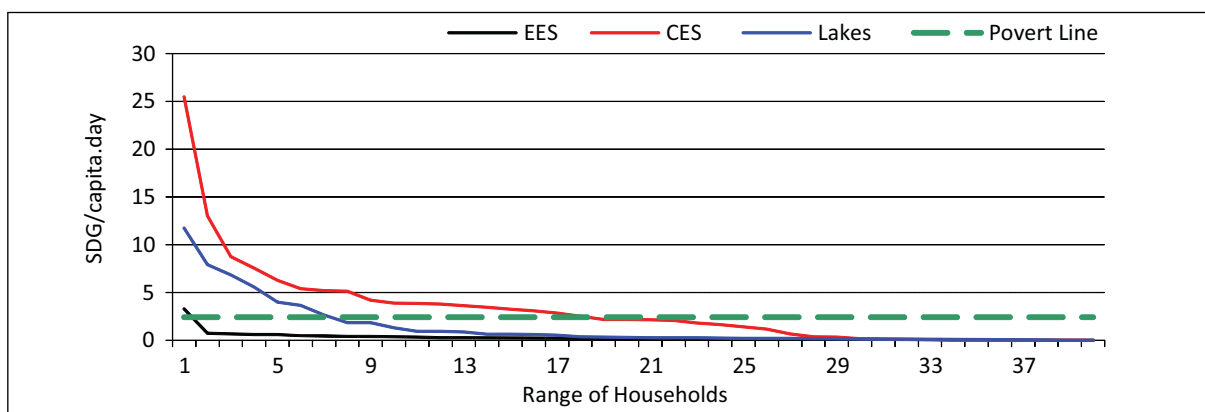


Figure 8. Distribution of households according to per capita income per day in the three States

On the other hand, energy intake and the nature of income source have a connection with the income poverty level. This is discussed in the following two sections.

### 11.9 Energy intake and expenditure on food

Energy intake as an indicator of poverty situation has been derived in relation to expenditure on food (Table 11). Generally, the nutritional situation is moderate but differs among the three States. It should be noted that the calorie levels come from relatively balanced food types. Various food sources are reported by the respondents – cereals (sorghum, rice, maize and, to a lesser extent, millet), food legumes (beans, broad beans, lentils, cowpea, and pigeon pea), oil seeds (sesame and groundnuts), tubers (potatoes, sweet potatoes, and cassava), meats, and vegetables. Judged at average acceptable calorie intakes of 2200 cal per individual, 31% of the people in the EES and 33% in the CES receive less than the energy requirements (at 1761 and 1531 cal per capita). In the Lakes State, the nutritional situation is more acute – close to 60% of the individuals are malnourished and their average calorie intake (1223 cal) is low, lying far behind that of those whose energy consumption is above the calorie threshold (1104<sup>2</sup> cal). In all three States, per capita expenditure on food is notably low for individuals whose calorie intake is below the recommended level. A striking feature is the high disparity in calorie intake and per capita expenditure on food between those above and those below the energy threshold. This is an indication of the presence of deep poverty among a sizeable portion of the population. As will come later, per capita incomes are way below per capita expenditure in all States. Accordingly, the relatively high expenditure on food among the upper group is probably due to their better access to unknown or undeclared outside assistance and is certainly indicative of a skewed situation of nutrition, especially in the Lakes State.

### 11.10 Income sources

Analysis of income by income source could shed light on the possible types of intervention that would lead to income increase and, accordingly, alleviation of poverty. (Table 12) gives the contribution of different

Table 11: Average energy levels and food expenditure in the three States\*

Item	Central Equatoria State	Eastern Equatoria State	Lakes State
Individuals above calorie threshold	259	183	144
Individuals below calorie threshold	73	84	208
% Below calorie threshold	22	31	59
Average calories above threshold	4359	4868	11042
Average calories below threshold	1531	1761	1223
Per capita expenditure on food above threshold	3.02	1.90	5.51
Per capita expenditure on food below threshold	1.10	0.72	0.92

\* Calorie intake is derived from data reported on food expenditure where estimates of average prices are used to derive quantities and then Sudan Food Composition Tables (Boutros 1986) are used to compute calorie contents.

sources to household income in monetary terms, whereas Fig. 9 provides the same distribution in percentage terms. A striking feature is the high contribution of non-agricultural income; this is particularly so in the CES, where agriculture is not undertaken on any significant scale. It is also evident that per capita incomes are low in the Lakes State, forming only about 5% of those in the EES and 44% of those in the CES. This indicates that poverty seems to occur to the same extent as the intensity of agricultural engagement. As mentioned earlier, agriculture as an occupation increases from the CES to the Lakes State to the EES and so does poverty, indicating that agricultural engagement is closely associated with poverty. This is logical, given the limited farming and animal production, as well as low productivity. Although agriculture is more practiced than other economic activities, incomes from such activities seem to bring higher incomes. This situation is suggestive of widening the range of economic opportunities and, at the same time, intensifying interventions in agriculture to improve productivity and increase the scale of operation.

Table 12: Per capita annual income from different sources (SDG)

State	Cropping	Livestock	Total agriculture	Remittances	Credit	Non-agriculture	Total
CES	0	1	1	18	51	1096	1165
EES	61	1988	2050	2612	869	5585	11115
Lakes	25	100	125	85	8	293	511

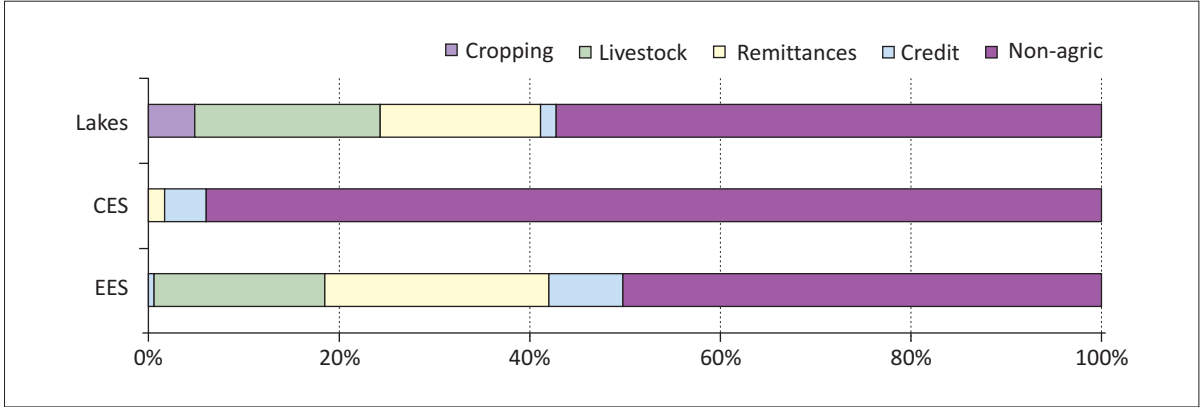


Figure 9: Percent contribution of main income sources to total household income in the three States

**11.11 Expenditure**

The expenditure pattern among households derived as average per capita expenditure per day in the three States is revealed by (Table 13). Two indicators associated with the poverty status and featured in the table are the food share in total expenditure and the ratio of total expenditure to income. The food share in total expenditure is substantial in the three States, but it is particularly high in the EES – approaching 60%. The high level of expenditure in the CES, although the average is exaggerated by high figures of a few respondents, is understandable in an area (Juba) dominated by urban dwellers. In all, the high shares of food expenditure are indicative of poverty in spite of the fact that one would expect even higher shares. The reason is that expenditure on food is generally low, given the predominantly prevailing traditional foods, the low quantities of food consumed, and the need for households to make high payments from their meager incomes for other important livelihood items such as drinking water. The whole situation is suggestive of malnutrition.

On the other hand, expenditure is invariably much higher than per capita annual incomes for all sampled households. Ratios ranging from 4.9 to 9.7 are computed for the three States, with the urban-based dwellers in the CES having relatively higher expenditure relative to their incomes, which are in turn also substantially higher than those in the other two States. The high discrepancies between expenditure are somehow puzzling but indicate the presence of an underground social support system. This is believed

<sup>2</sup> The high figure of 11042 cal is inflated by the reported energy intake of three households, which (when excluded) results in an average figure of 7375 cal.

Table 13: Structure of expenditure in the three States

Item	States		
	Central Equatoria State	Eastern Equatoria State	Lakes State
Average expenditure (SDG/capita/day)	15.32	2.96	5.25
Expenditure on food (SDG/capita/day)	2.64	1.58	2.98
Expenditure on non-food (SDG/capita/day)	12.69	1.38	2.27
Food share in total expenditure (%)*	42	59	43
Total income (SDG/capita/day)	3.19	0.30	1.40
Ratio total expend to total income	4.8	9.9	3.8

\* Computed as average of shares of all cases.

to be common in Southern Sudan, where there is a high dependence on relatives and friends; this is a situation that depicts high social solidarity in a region that has been torn by war for decades. According to the WFP 92004, traditional support mechanisms in Sudan are common and often used to offset the impact of any localized crisis or emergency through provision of loans, gifts, food and credit from the better-off to the poorer members of a community. These networks are still functioning despite being stretched over the years due to conflict, displacements, and recurrent drought. Yet the discrepancy between incomes and expenditure could also be, in part, again due to the low denominator – per capita incomes – where even a small rise in expenditure would exaggerate the ratios.

#### 11.12 Household assets and incomes

Disaggregating household assets by type and deriving their relationship to annual incomes are useful in providing some policy directives. (Table 14), which illustrates such aspects, first reflects the normal situation that asset value (total and productive assets) is higher than annual incomes, in spite of the fact that such values are exaggerated by the low income levels. The high asset value in the Lakes State is attributed to the high livestock ownership there. Second, the ratio of agriculturally productive assets (cropland, livestock, farm implements, bicycles, and warehouse) to total assets is considerable in the EES and the Lakes State, whereas it is negligible in the CES. Being urban, the CES respondents derive their incomes from sources other than investment (salaries). Third, comparing the EES and the Lakes State, where agriculture is practiced at considerable scales, the income-to-productive assets ratio is substantial in the former while it is low in the latter.

This implies that, whereas a potential exists in the two States to better utilize the productive assets, such potential is enormous in the Lakes State. Yet, except in the Lakes State, it might not be high enough to generate decent income levels, nor would all asset types be productive and the nature of many of the asset types is basically weak. The extremely low asset-to-income ratio in the CES is commensurate with that of an urban situation where, particularly, agricultural assets are almost completely lacking. On the other hand, the high asset-to-income ratio in the Lakes State is explained by the presence of considerable livestock ownership.

#### 11.13 Empirical poverty results of the three States

In the context of the above analytical framework, fresh poverty results are produced based on the survey data obtained from Southern Sudan. This data revealed that for almost every household identified to be poor, the reported consumption expenditure exceeds the reported income and the distribution of the former is more equal relative to that of the latter. As for every sum of expenditure, there should be a corresponding equal sum of income; the excess of expenditure over income is obviously an unreported income that is eventually reflected in the expenditure side of the household budget. Possible reasons for the expenditure-income disparity are mentioned before. However, other possible reasons could be a recall problem from the respondent side or an interviewing problem from the researcher side or, more likely, a



Table 14: Relationships between asset value and annual household incomes in the three States

Asset Type	States		
	Central Equatoria State	Eastern Equatoria State	Lakes State
Cropland	0	579	14652
Livestock	0	227	2274
Farm implements	2	43	1108
Bicycles	116	112	329
Warehouse	6		375
Jewelry	280	6	
House	7656	266	6342
Appliances	660	35	42
Flour mill		240	
Electricity generator	581		44
Motor vehicles/cycles	2126		403
Total assets	11427	1508	25569
<i>Productive assets</i>	<i>124</i>	<i>960</i>	<i>18739</i>
<i>Annual household income</i>	<i>7785</i>	<i>569</i>	<i>3446</i>
<i>Ratio productive/total assets</i>	<i>0.01</i>	<i>0.64</i>	<i>0.73</i>
<i>Ratio income/productive assets</i>	<i>62.93</i>	<i>0.59</i>	<i>0.18</i>

respondent desire not to reveal the source of unreported income. Letting the reason be as it may be, it can be argued that the observed excess of expenditure over income among the poor in the South is far beyond the social protection capabilities of the people of the South. Obviously, there is an unidentified body<sup>3</sup> that systematically transfers income to the poor in the South.

Now, in order to assess the antipoverty effect of the invisible hand that transfers income to the poor in the South, measuring poverty is needed using both income and expenditure distributions separately. The results for the three selected areas in the South are reported in (Tables 15–17).

Table 15: Food poverty in the Central Equatoria State (2009)

Poverty indicators (%)	Using income	Using expenditure	Change*
Incidence of poverty	44.2	6.7	-37.5
Income-gap ratio	54.6	38.8	-15.7
Depth of poverty	24.1	2.6	-21.5
Inequality among the poor	42.9	7.8	-35.1
Severity of poverty	8.6	0.3	-8.3
Total poverty	32.7	2.9	-29.8
Poverty line (SDG)	881	881	0

Source: Own computation based on 2009 household budget survey data in Southern Sudan.

\* Change = the antipoverty effect of the excess in expenditure over reported income.

In the context of what was said about expenditure being in excess of income, the poverty results reported in (Table 15) speak for themselves. It is clear from (Table 15) that the unknown body that transfers income to the poor reduces all aspects of poverty, including the head-count ratio. The head-count ratio is reduced from 44.2% to 6.7% – an enormous reduction of 37.5 percentage points. This implies that the invisible hand transfers to the poor are so big that some of the income-poor are able to overstep the poverty line and become non-poor. Although the income-gap ratio is reduced from 54.6% to 38.8% (a reduction of

<sup>3</sup> Cesar describes this as an underground source of income.

15.7 percentage points), the poverty-gap ratio (the depth of poverty) is reduced from 24.1% to 2.6% (a reduction of 21.5 percentage points).

It is interesting to note that even the degree of income inequality among the poor (the Gini Coefficient) is reduced from 42.9% to 7.8% (a reduction of 35.1 percentage points). Consequent to the reduction in inequality, the severity of poverty has eventually been reduced from 8.6% to 0.3% (a reduction of 8.3 percentage points). The reduction of income inequality (the Gini Coefficient) from 42.9% to 7.8% would imply that what was described as an invisible hand that transfers income to the poor is very efficient in targeting the ultra-poor. Finally, as a result of an unknown body that transfers income to the poor, all poverty indicators are reduced, and the total poverty ratio in the CES has ultimately been reduced from 32.7% to 2.9% (a reduction of 29.8 percentage points).

Table 16: Food poverty in the Eastern Equatoria State (2009)

Poverty indicators (%)	Using income	Using expenditure	Change*
Incidence of poverty	99.6	30.0	-60.6
Income-gap ratio	86.8	36.7	-50.1
Depth of poverty	86.5	14.3	-72.2
Inequality among the poor	39.5	20.6	-18.9
Severity of poverty	5.2	5.1	-0.1
Total poverty	91.7	19.4	-72.3
Poverty line (SDG)	692	692	0

Source: Own computation based on 2009 household budget survey data in Southern Sudan.

\* The antipoverty effect of the excess in expenditure over reported income.

The results in (Table 17) indicate that poverty in the EES is higher than in the CES under both household income and expenditure distributions. But because, within the EES, all poverty indicators under income distribution are much higher than those under expenditure distribution, the antipoverty effect of the invisible hand in the EES is greater than in the CES.

For example, we note from (Table 16) that, although the incidence of poverty under income distribution is 99.6%, the incidence of poverty under expenditure distribution is 30.0%, implying that the invisible hand has reduced the incidence of poverty by 60.6 percentage points. We also note from (Table 15) that, although the income-gap ratio under income distribution is 86.%, the same poverty indicator under expenditure distribution is 36.7%, which eventually means that the invisible hand has reduced the income gap ratio by 50.1 percentage points. Probably because of the proper direct targeting by the invisible hand, the mean income of the poor is increased to the extent that the depth of poverty is reduced from 86.5% under income distribution to 14.3% under expenditure distribution, where unreported income is reflected. As a result of this huge increase in the mean income of the poor, the invisible hand of the EES has reduced the depth of poverty by 72.2 percentage points. It is quickly noted that welfare inequality among the poor under expenditure distribution in the EES is greater than that in the CES. This would imply that the invisible hand in the CES targets the ultra-poor better than in the EES.

Finally, as a result of the enormous reduction of the incidence and the depth of poverty attributable to the anti-poverty role of the invisible hand, that invisible hand has reduced total poverty in the EES from 91.7% under income distribution to 19.4% under expenditure distribution, causing a reduction of about 72.3 percentage points.

It is worth noting from the bottom row of (Table 17) that the food poverty line in the Lakes State is higher than those in the other two areas. This difference in the poverty line between the Lakes State and the remaining two areas is not due to differences in the regional food prices but it may be due to differences in the composition of the food baskets. Nonetheless, the poverty figures in the Lakes

State are not significantly higher than those in the other areas, implying that the people of the Lakes State enjoy relatively higher levels of incomes than the people in the other areas. One more noticeable difference between the Lakes State and the other two areas regarding poverty is that the unknown body (the invisible hand) that transfers income to the poor in the South reduces all poverty indicators in the three areas except the severity of poverty in the Lakes State, where it increased from 6.2% under income distribution to 7.2% under expenditure distribution, resulting in an increase of 1 percentage point. One possible explanation of this is the dominance of the increase in the mean income of the poor over the decrease in income inequality and the incidence of poverty in the Lakes State. Moreover, a general poverty difference between the Lakes State and the other two areas is that, although poverty indicators in the Lakes State are lower than in the EES except for the severity of poverty, they are significantly higher than in the CES except for the severity of poverty. The difference in the severity of poverty between the three areas is due to the difference in the ability of the invisible hand that transfers income in the South to target the ultra-poor.

Table 17: Food poverty in the Lakes State (2009)

Poverty indicators (%)	Using income	Using expenditure	Change*
Incidence of poverty	88.0	52.3	-35.7
Income-gap ratio	86.6	45.5	-41.1
Depth of poverty	76.2	23.8	-52.4
Inequality among the poor	52.7	25.3	-27.4
Severity of poverty	6.2	7.2	1.0
Total poverty	82.4	31.0	-51.6
Poverty line (SDG)	1202	1202	0

Source: Own computation based on 2009 household budget survey data in Southern Sudan.

\* The antipoverty effect of the excess in expenditure over reported income.

The remaining results in (Table 17) are self-explanatory. We note from the table that, although the unknown body (the invisible hand) that transfers income to the poor in the Lakes State reduces the incidence of poverty from 88% under income distribution to 52.3% under expenditure distribution (a reduction of 35.7 percentage points), the depth of poverty from 76.2% under income distribution to 23.8% under expenditure distribution (a reduction of 52.4 percentage points), and inequality among the poor from 52.7% under income distribution to 25.7% under expenditure distribution (a reduction of 27.4 percentage points), it increases the severity of poverty from 6.2% under income distribution to 7.2% under expenditure distribution (an increase of 1 percentage point). Nonetheless, the same invisible in the Lakes State has reduced total poverty from 82.4% under income distribution to 31.0% under expenditure distribution (an enormous reduction of 51.6 percentage points).

## 12. CONCLUSIONS AND RECOMMENDATIONS

Having emerged out of a prolonged period of conflict, Southern Sudan faces enormous challenges represented by poor or absent basic infrastructure and basic services, a weak economy, challenging governance and rule-of-law conditions, low human resources capacities, high population growth, a sizeable number of war-affected communities and returnees, and towering unemployment. Measured by earned incomes, poverty is high with differences among regions, but largely in the range of more than 50% to close to 100% and most income is spent on food. Human poverty is immense, as depicted by meager access to primary education, high rates of infant and mortality in the under-5-year-olds, acute child and women’s health, prevalence of malnutrition among the under-5-year-olds, low level of access to clean water sources and sanitation facilities, and limited health care. Yet on the other hand, Southern Sudan is culturally, geographically and religiously diverse and well endowed with natural resources, including water, wildlife, forest, oil, and minerals. In addition, there is a well-established government that should be well placed to address such formidable issues – armed with the flow of peace and a structured program of action under the CPA. Given the conditions in the South, and in spite of actions that could

be taken in the short term, poverty reduction certainly has a long-term intensive dimension that entails addressing poverty within a comprehensive long-term program, taking into consideration all of the macro and sectoral components mentioned above into consideration.

**Recommendation 1:** *The government will need to put in place a long-term program that handles poverty within a broad perspective by strengthening its institutions, developing and implementing policies and legislation, as well as building new capacities, systems and structures for delivering services in the areas of health, education and clean water.*

Although the planned budgetary allocation of funds is broadly consistent with sound social development targets – illustrated by programs for infrastructure, health, education, and water and sanitation – aggregate spending was driven by overspending on wages and operations away from pro-poor spending due to data constraints and limited fiscal discipline.

**Recommendation 2:** *The government is required to invest in data acquisition on poverty analysis and household budget surveys at the central and state levels to improve planning and the analytical underpinning of budget preparation, enhance budget credibility, and reallocate to pro-poor spending.*

In particular, the return of refugees over a relatively short time, the presence of war-affected communities and internally displaced people pose real and strenuous challenges. At the same time, pledged assistance from donor organizations is not flowing as was committed.

**Recommendation 3:** *Donor organizations are required to live up to their promises in providing pledged assistance while the government should first intensify its efforts to urgently attend to the needs of these groups, and secondly mobilize funds from its own budget, and thirdly seek additional resources from other donors for the same purpose.*

Elaborate information on poverty is scanty, but available data indicate that poverty is largely associated with agriculture, which forms the main livelihood source for the rural population. Agriculture suffers from many constraints. Holdings are quite small and productivity is very low, inducing precarious food availability, and accordingly food security, from own production and jeopardizing the household situation in terms of cash. The range of crops grown is narrow, implying a risky situation. Technology use is highly traditional, with no use of productivity, thereby enhancing inputs, of which improved seeds and seed delivery replenishment, fertilizers, pesticides and draft power form needed components. Along with varying food poverty, the nutritional status of people is especially precarious in some areas, as depicted by very low calorie intake. The productive-asset base is weak and, given very low incomes, the income-to-asset ratio is low. However, there is high potential to better utilize the available productive assets. On the livestock side, numerous types of disease pose an important constraint on livestock productivity under lack of veterinary services.

**Recommendation 4:** *The immediate policy strategy of Southern Sudan should be focused on a large-scale public investment program concentrated on improving productive conditions and redistributing investment in traditional rainfed farming and herding.*

**Recommendation 5:** *Induce expansions in agricultural holdings via promotion of use of draft power, where increased use of animal draught power forms a plausible option.*

**Recommendation 6:** *Enhance crop productivity with the initial priority being on staple foods by provision of fertilizers, improved seeds, pesticides and credit, along with intensive training and extension services. Extension can be strengthened by utilizing returnees from the Diaspora in knowledge transfer to producers, involving the private sector (university professors and farm institutions) in providing farm advice to farmers for a fee and use of demonstration farms and farmer field schools. Efforts to replenish seeds became a priority of the government and relief agencies, whereas seed improvement lies within the domain of research.*

**Recommendation 7:** Fertilizer manufacturing, given domestic oil production, should be regarded as a strategic concern. If the private sector is not forthcoming in investing in the production of fertilizers, then the government should investigate in its feasibility and take the initiative in its production.

**Recommendation 8:** Widen the range of crops grown through strengthening research and tapping markets in the Sudan at large, the region and at the global level. Injection of high-value cash crops, vegetables and non-traditional crops with comparative advantages form sound targets to reduce risks, improve incomes and enhances the nutritional situation.

**Recommendation 9:** The maintenance of vaccination programs, which should be of concern not only for the animals of Southern Sudan but also for the livestock in neighboring countries.

**Recommendation 10:** The government needs to invest in periodic household income and expenditure surveys and encourage regional and international organizations and NGOs to intensify studies to provide information on disaggregated poverty conditions in the South.

The market structure is poor. Within the purely relief-cum-subsistence system in Southern Sudan, the volume of locally produced commodities that are traded intra- and inter-regionally is small and integration in the Sudanese economy is limited. Border trade is useful but its magnitude is low. Inadequacy of, and inaccessibility to, markets is caused by restriction in physical availability of markets, limited market information, poor road conditions and river flooding during the critical months of the year, when households resort to markets for their food needs.

**Recommendation 11:** Increase government investment in infrastructure, focusing on small-scale infrastructure, particularly rural roads and storage facilities to directly and immediately benefit poor farmers and herders, and investment in long-term large-scale infrastructure projects designed to connect the far-flung reaches of the South and towards Northern Sudan to a common transportation, power and communications network.

**Recommendation 12:** The government is to design relevant policies to establish physical markets, sensitize the private sector and NGOs for involvement in local businesses to actively participate in the performance of marketing functions and train a cadre of local traders and producers to engage in productive agribusiness, and interact with the private sector for provision of market information.

It is evident that women play an increasing role in sustaining food security. Yet, gender-disaggregated data are hardly available, especially on access to resources and services, and benefits derived by men and women. On the other hand, the presence of a Ministry of Gender and Labor information is an important opportunity for institutional development in this regard.

**Recommendation 13:** The Ministry of Gender and Labor should be specifically supported to spearhead and sensitize relevant institutions for collecting gender-disaggregated information through well-targeted surveys by local government institutions and the general census, training rural women, innovating and producing appropriate, labor-saving rural women's technology, and providing financial empowerment to women to become principal partners in improving agricultural economic activity (benefiting equally with men).

Industrialization, especially agricultural processing of crop and livestock products, is central in widening employment opportunities and bringing added value to small producers. It is currently rare due to the absence of know-how and limitations in access to markets.

**Recommendation 14:** Develop programs designed for advancing processing activities in rural areas with a focus on existing and potential agricultural products including livestock, associated with training activities and credit provision and assigning priorities to small, poor households in rural areas.

## REFERENCES: POVERTY ASSESSMENT IN SOUTHERN SUDAN

- Ajawin Y. and D.A. Waal. 2002. *When Peace Comes: Civil Society and Development in Sudan*. The Red Sea Press, XXXX.
- Ali Abdel Gadir Ali. 1994. *Structural Adjustment Programs and Poverty in Sudan*. Arab Research Center, Cairo, Egypt.
- Ali Abdel Gadir Ali. 2004. *Can the Sudan Reduce Poverty by Half by the Year 2015?* API/WPS 0304.
- Ali, A.G.A and A.I. Elbadawi. 2002. *Explaining Sudan's Economic Growth Performance*. AERC Collaborative Research Project on Explaining Africa's Growth Performance: Arab Planning Institute, May 2002.
- Besley T. January 1994. *How Do Market Failures Justify Interventions in Rural Credit Markets?* *The World Bank Research Observer*, Vol. 9, No.1.
- Boutros, J. 1986. *Sudan Food Composition Table*. National Chemical Laboratories, Ministry of Health, Khartoum, Sudan.
- Chambers, R. 1994. *The Origins of Participatory Rural Appraisal*. *World Development*, vol. 22.
- Chambers, R. 1997. *Whose Reality? Putting First Last*. Intermediate Technology Publications, London.
- Cliffe, S. and M. Kostner. 2004. *The Planning and Management of Post- Conflict Reconstruction: What to do first when everything is a priority?* PowerPoint presentation.
- Collier, P. and A. Hoeffler. 1998. *On Economic Causes of Civil War*. Oxford Economic Papers number 50.
- Carroll, L. 2008. *Poverty reduction: the Australian approach*. Available at: [devnet.anu.edu.au/online%20versionpdfs/55/3Carroll55.pdf](http://devnet.anu.edu.au/online%20versionpdfs/55/3Carroll55.pdf). Accessed on 5 May 2008.
- Commonwealth of Australia. 1997. *Better aid for a better future: seventh annual report to Parliament of Australia's Development Cooperation Program and the Government's response to the Committee of Review of Australia's Overseas Aid Program*. AusAID, Canberra.
- Commonwealth of Australia. 2001. *Reducing Poverty – The Central Integrating Factor of Australia's Aid Program*. AusAID, Canberra.
- Commons, J.R. (1990 edition). *Institutional Economics: its Place in Political Economy*. New Brunswick (USA), Transaction Publishers.
- Deng, L.A. 2004. *The Challenges of Post-conflict Economic Recovery and Reconstruction in the Sudan*. A Paper prepared for presentation at the Woodrow Wilson Center, 24 September, Washington, DC, USA.
- Deng, L.A. and W.J. Kategile. 2004. *Institutional Reform and Capacity Development in Post-Conflict Countries: Can Countries Emerging Out of Civil Wars Get Institutions Right?* Paper prepared for the World Bank Institute (WBI).
- Dollar, D. and A. Kraay. 2000. *Growth is good for the poor*. World Bank. Available at: <http://www.worldbank.org/research/growth/pdffiles/Trade5.pdf>. Accessed on 1 July 2010.
- Easterly, W. 2004. *Can Institutions Resolve Ethnic Conflict?* *Economic Development and Cultural Change*.
- Easterly, W. and R. Levine. 1997. *Africa's Growth Tragedy: Policies and Ethnic Divisions*. *Quarterly Journal of Economics* CXII (4): 1203–1250.
- Fageer, M.K. and A.B. Merghany. et al. 2002. *Poverty and Social Development in Sudan*. Mimeo, Sudan.
- FAO/WFP. 2000. *Crop and Food Supply Assessment Mission to Sudan*.
- Fitzgerald, M.A. 2002. *Throwing the Stick Forward: The Impact of War on Southern Sudanese Women*. UNIFEM & UNICEF, 2002 - 44 pages.
- Foster, Greer and Thorbecke. 1994. *A Class of Decomposable Poverty Measures*. *Econometrica* 52: 761-766.
- Garang, J.M. 1999. *Address to Participants in the Economic Governance Workshop*, 20 November, Yambio, Sudan.
- Garang, J. 2004. *Speech on the Occasion of Signing the Nairobi Declaration*. Available at: [www.gurtong.org](http://www.gurtong.org). Accessed on 1 July 2010.
- Guvele, C. 1999. *On the Edge: The Pastoral Economy of Southern Sudan*. *Consultancy Report for the Feinstein International Famine Center*. Boston, Tufts University.
- Guvele, C. 2001. *Gains from Crop Diversification in the Sudan Gezira scheme*. *Agricultural Systems* 70: 319–333.
- Guvele, C. 2002a. *Viable Food Production Strategy under the Complex Emergency of Southern Sudan*. Unpublished Report.

- Guvele, C. 2002b. Cropping Decisions under Stress in Southern Sudan: A Methodological Application. Unpublished Manuscript.
- Guvele, C. 2003. Can Cross-border Trade Between Southern Sudan and East Africa be Sustained? Conference paper for the 22<sup>nd</sup> Annual Meeting of Sudan Studies Association; 3<sup>rd</sup> International Conference of Sudan Studies Association (USA) and Sudan Studies Association (UK); 31 July to 2 August, 2003; Georgetown University, Washington, DC, USA.
- Guvele, C. June 2004. Feminization of Agricultural Security: The Case of Southern Sudan. USDA/PASA.
- Guvele, C. June 2007. Challenges to Food Security in Southern Sudan.
- Guvele, C. April 2008. A Framework for Food security in Southern Sudan, Uncirculated Discussion paper.
- GOSS. 2008. Approved Budget, Ministry of Finance and Economic Planning.
- Government of Norway. 2002. Fighting Poverty: The Norwegian Government's Action Plan for Combating Poverty in the South towards 2015.
- Jagers, K. and T.R. Gurr. 1995. *Polity III: Regime type and political authority, 1800–1994*. Available at: [ssdc.ucsd.edu/ssdc/icp06695.html](http://ssdc.ucsd.edu/ssdc/icp06695.html). Accessed on October 2003.
- Majok, A.A. and C.W. Schwabe, 1996. Development Among Africa's Migratory Pastoralists. London, Bergin and Garvey.
- Mehran, Hatim Amir. 2004. The impact of Public Policy on Poverty in Sudan, Arab Planning Institute, Kuwait, 2004
- Moezz, M. 2000. Evaluating the Income Economies of Yambio and Rumbek County in Southern Sudan. Research Report.
- Mulumba Badru. 2008. Southern Sudan locked in dependency syndrome. Southern Sudan Nation. Research Report.
- Nader Fergany. December 1997. Towards Poverty Eradication in the Sudan: An Analysis of Human Capability Failure. UNDP Khartoum.
- New Sudan Center for Statistics and Evaluation and UNICEF. May 2004. Towards a Baseline: Best Estimates of Social Indicators for Southern Sudan. NSCSE Series Paper 1/2004.
- Schiavo-Campo, S. and D. Tommasi. 1999. Managing Government Expenditure. Asian Development Bank, Manila, April 1999.
- Sen, A.K. 1981. Poverty and Famines: An Essay on Entitlement and Deprivation. Clarendon Press, Oxford.
- Sen, A.K. 1999. Development as Freedom. Anchor Books, New York.
- Sudan People's Liberation Movement. February 2000. Peace Through Development: Perspectives and Prospects in the Sudan. SPLM, Nairobi.
- UNDP. June 2006. Macroeconomic Policies for Poverty Reduction: The Case of Sudan.
- USAID. 2002. Southern Sudan Agricultural Revitalization Program. USAID.
- WFP. January 2004. Sudan Annual Needs Assessment 2003/2004; Food Security Report: Regional Outlines & Recommendations. Report compiled by WFP Sudan.
- WFP-FAO-MAF. February 2007. Annual Needs and Livelihoods Assessment. WFP, Southern Sudan.
- World Bank, 1990. World Development Report 1990; Poverty. Oxford, Oxford University Press.
- World Bank. 2000a. World Development Report 2000/2001: Attacking Poverty. Oxford University Press, Oxford.
- World Bank. 2000b. World Bank development indicators CD-ROM. The World Bank, Herndon, VA.
- World Bank, 2001a. World Development Indicators 2001. The World Bank, Washington DC. 2001.
- World Bank. 2001b. World Development Report 2000/2001 – attacking poverty. Oxford University Press, New York.
- World Bank. 2002. Building Institutions for Markets. World Development Report 2002. Oxford University Press, New York.
- World Bank. 2003a. Sudan: Stabilization and Reconstruction Country Economic Memorandum. Unpublished Paper.
- World Bank. 2003b. Breaking the Conflict Trap: Civil War and Development Policy. Oxford University Press, New York.
- World Bank, 2004. World Development Indicators 2004. The World Bank, Washington DC. 2004.
- World Bank. 2007. Sudan Public Expenditure Review. World Bank, Poverty Reduction and Economic Management Unit Africa Region. Report No. 41840-SD.
- World Bank. 2008. World Development Report 2008. The World Bank, Washington DC. 2008.

## About ICARDA and the CGIAR



Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is one of 15 centers supported by the CGIAR. ICARDA's mission is to contribute to the improvement of livelihoods of the resource-poor in dry areas by enhancing food security and alleviating poverty through research and partnerships to achieve sustainable increases in agricultural productivity and income, while ensuring the efficient and more equitable use and conservation of natural resources.

ICARDA has a global mandate for the improvement of barley, lentil and faba bean, and serves the non-tropical dry areas for the improvement of on-farm water use efficiency, rangeland and small-ruminant production. In the Central and West Asia and North Africa region, ICARDA contributes to the improvement of bread and durum wheats, kabuli chickpea, pasture and forage legumes, and associated farming systems. It also works on improved land management, diversification of production systems, and value-added crop and livestock products. Social, economic and policy research is an integral component of ICARDA's research to better target poverty and to enhance the uptake and maximize impact of research outputs.



CGIAR is a global research partnership that unites organizations engaged in research for sustainable development. CGIAR research is dedicated to reducing rural poverty, increasing food security, improving human health and nutrition, and ensuring more sustainable management of natural resources. It is carried out by the 15 centers who are members of the CGIAR Consortium in close collaboration with hundreds of partner organizations, including national and regional research institutes, civil society organizations, academia, and the private sector. [WWW.cgiar.org](http://WWW.cgiar.org)