



**IGAD
Livestock
Policy
Initiative**

The Political Economy of Livestock And Pastoralism In Sudan

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**A Living from
Livestock**

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This paper is part of a series of political economy Working Papers prepared for the Inter-Governmental Authority on Development's Livestock Policy Initiative (IGAD LPI) and the Pro-Poor Livestock Policy Initiative (PPLPI) of the Food and Agriculture Organization (FAO) of the United Nations. The purpose of these papers is to explore strategic political economy issues that would facilitate or inhibit livestock policy reforms in the IGAD region that would benefit poor producers.

Specifically, this paper seeks to understand how the Inter-Governmental Authority on Development's Livestock Policy Initiative (IGAD LPI), a project jointly managed by IGAD and the Pro-Poor Livestock Policy Initiative of FAO (PPLPI), can assist the poor livestock producers in the greater Horn of Africa to improve their livelihoods through strategic policy or institutional interventions. Unlike many policy papers, however, this report specifically and explicitly examines the political context in which livestock are produced, and aims to identify entry points that are truly feasible given these political realities. The report identifies key national and international actors, institutions and processes that surround formal and informal policy-making relevant to livestock production, the institutional bases of existing policies, and finally, strategies and resources required to make the politically feasible changes and creations possible. The recommendations made in this paper are therefore based on strategic choices, and not the technical or economic merits of various policy options.

Livestock is vital to the economies of many developing countries, and especially those of the Horn of Africa. Animals are a source of protein for human diets and can serve to provide income, employment and foreign exchange within a country. For many low income producers, livestock also serves as a store of wealth, provides draught power and organic fertilizer for crop production, acts as a means of transport, and serves as a vital component of social functions and exchange. Consumption of livestock and livestock products in developing countries, though starting from a low base, is growing rapidly. This sector growth could provide opportunities for the livestock-dependent poor to improve their livelihood, and this report aims to recommend politically feasible policy and institutional changes that can allow this to happen.

To arrive at its recommendations, this report uses the analytic tools of political science to determine policies that will be truly feasible in a particular real-world political context. The author is neither an economist nor a specialist in livestock production and is not using the criteria of those disciplines in its suggestions. The report instead seeks to select on the grounds of political feasibility from among the recommendations that local and international experts have made on technical or economic grounds. Thus, the report identifies key national and international actors, institutions and processes and their role in policy-making relevant to livestock, the institutional bases of existing policies, and finally strategies and resources required to make selected changes and creations possible.

Methodologically, the paper is based on several weeks of field work in the area, supplemented with a thorough review of government documents, newspapers and recently published research. The author relied foremost upon the informed observer method of research, conducting interviews with individuals and groups of people in a position to understand the political economy of the livestock sector, including the processes that shape its policies and their reform. Thus interviews were held with those in the government, the donor community, non-governmental organizations, academia, and the leadership of relevant livestock and other civil society organizations. These interviews were not a 'random sample' nor even necessarily 'representative'; the author sought those who had knowledge drawn from their own work and experience.

Due to the sensitive political nature of this research, interviewees were offered anonymity and confidentiality for their statements, and very few people chose to waive this right. Even though this report cannot cite their names, the author

subjected informants' statements to high standards of rigor. The author sought to be conscious of any partisan bias or rumor that informants might have had in their report and whether they were actually in a position to know on personal or very strong secondary authority what they reported. In most cases corroboration for key analytic points was sought as well, either from other informants or through quotable statements from academic literature. Where corroboration was impossible and the point was important the author generally has indicated the number of people who supported the point, so the reader can judge for him/herself the strength of the evidence. On occasion, the use of corroboration via academic literature may give the paper a 'desk study' veneer, but it is the understandings of the informants - analyzed with the theoretical tools of political science - that drive the conclusions.

We hope this paper will provide useful information to its readers and any feedback is welcome by the authors, IGAD LPI, FAO PPLPI and the Livestock Information, Sector Analysis and Policy Branch (AGAL) of the Food and Agriculture Organization (FAO).

Disclaimer

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of either the Food and Agriculture Organization of the United Nations or the Inter-Governmental Authority on Development concerning the legal status of any country, territory, city or area or its authorities concerning the delimitations of its frontiers or boundaries.

The opinions expressed in this paper are solely those of the author and do not constitute in any way the position of the FAO, IGAD, the Livestock Policy Initiative nor the governments studied.

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ACRONYMS AND ABBREVIATIONS

ABC	Abyei Boundaries Commission
ARC	Agricultural Research Corporation
ARRC	Animal Resources Research Corporation
ARSC	Animal Resources Services Company
BCE	Before the Common Era
CAHWs	Community Animal Health Workers
CE	Common Era
CPA	Comprehensive Peace Agreement
DPA	Darfur Peace Agreement
DRC	Democratic Republic of Congo
EIU	Economist Intelligence Unit
ERW	Explosive remnants of war
ESPA	Eastern Sudan Peace Agreement
FAO	Food and Agriculture Organization
GONU	Government of National Unity
GOSS	Government of Southern Sudan
ICG	International Crisis Group
IGAD	Intergovernmental Agency for Development
IMF	International Monetary Fund
JEM	Justice and Equality Movement
MAF	Ministry of Agriculture and Forestry
MARF	Ministry of Animal Resources and Fisheries
MOST	Ministry of Science and Technology
NCP	National Congress Party
NDA	National Democratic Alliance
NIF	National Islamic Front
NRF	National Redemption Front
OLS	Operation Lifeline Sudan

SLA	Sudan Liberation Army
SPLM/A	Sudan People's Liberation Movement / Army
SSDF	South Sudan Defense Force
SSLC	Southern Sudan Land Commission
UN	United Nations
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VSF	Vétérinaires sans Frontières / Veterinarians without Borders

EXECUTIVE SUMMARY

This report provides an analysis of the political and economic context within which livestock-related policies and organizations are formed and operate in Sudan. The report assesses the political and economic forces that limit the design and implementation of pro-poor livestock policies and suggests plausible entry points for policy interventions, taking into account political realities in Sudan.

Several political and economic factors limit the possibilities of implementing pro-poor livestock policies in Sudan:

- the conflict in Darfur is exacerbating Sudan's humanitarian crisis and diverting funding and attention away from pro-poor development policies and programmes.
- the economic system has historically favoured the horizontal expansion of crop production at the expense of livestock production and pastoral livelihoods.
- the political system is run by a small elite affiliated with the National Congress Party that formulates development policy without sufficient consideration of the needs and desires of poor livestock owners.
- the rise of oil production has disrupted pastoral livelihoods in oil producing areas and diminished the importance of livestock production for the Sudanese economy.
- the flows of international aid and assistance have supported and continue to support government policies that harm pastoral livelihoods and lead to conflict.

Despite the persistence of conflict and insecurity, recent peace agreements and development programmes address issues of importance for livestock and pastoralism:

- **Land Tenure:** After peace, land tenure is the most important issue for pastoral livelihoods. The Land Commissions created by the Comprehensive Peace Agreement have the potential to safeguard the rights and interests of poor livestock owners, although powerful political and economic actors, including oil interests, may influence the Commissions in such a way that the outcomes are not pro-poor.
- **Green Alert Programme:** The ruling National Congress Party introduced this new development programme in July 2006. It is focused on increasing crop production and will likely lead to further marginalisation of poor livestock keepers in Sudan. International organizations and donors should carefully consider the likely impacts of this programme on the Sudanese poor before agreeing to support it.
- **"Settling the Nomads":** Nomads have historically been marginalised and blamed for an array of social, economic, and environmental problems. Current government policies and programmes promoting the settlement of migratory pastoralists could have negative outcomes for nomadic populations.
- **Censuses:** There is an urgent need for accurate censuses of Sudan's human and livestock populations as well as a "land census" to survey the status of natural resources. This information could be foundational for meaningful pro-poor policies and programmes, but the persistence of conflict and massive population displacements make credible and legitimate censuses difficult to conduct.
- **Marketing System:** The livestock commodity chain in Sudan is dominated by brokers and wealthy exporters, to the detriment of primary producers. Current efforts to improve the marketing system should pay greater attention to ways to safeguard and improve the livelihoods of poor livestock owners.
- **Taxes and Fees:** There are numerous taxes and fees for livestock production that adversely affect pastoral livelihoods and the success of other policy interventions.
- **Disease Control:** Livestock disease control in Sudan has focused on economically-significant diseases with an international reach such as rinderpest and avian flu, but greater consideration for animal health interventions to assist poor livestock keepers is warranted.

- **Landmines and Explosive Remnants of War:** Livestock keepers and livestock are killed and maimed by mines and unexploded ordnance, making mine action an important element of pro-poor policy initiatives in affected areas.
- **Regional Issues within Sudan:**
 - **Darfur:** The persistence of conflict effectively prevents meaningful pro-poor policy interventions in many areas of Darfur.
 - **Southern Sudan:** Peace presents many opportunities for livestock owners in Southern Sudan, but implementation of the CPA has been slow and the persistence of insecurity threatens pastoral livelihoods.
 - **Eastern Sudan:** The peace agreement concluded in October 2006 could pave the way for meaningful pro-poor livestock policy initiatives in Eastern Sudan, but it also must overcome significant obstacles.

Given the on-going conflicts in Sudan and the high degree of politicisation and entrenched interests surrounding many of the above issues the best way of introducing new perspectives on them and creating new dynamics for negotiation and decision-making may well be to address them on an IGAD-wide basis. In such a setting, key actors may feel less threatened and the IGAD Livestock Policy Initiative will be clearly legitimate in exercising leadership.

National Livestock Policy Issues

- the Land Commissions need to allow for the creation of land management systems that are flexible enough to account for the evolution of customary law and temporal and spatial variations in fodder production.
- a livestock market information system and improved communication networks to provide rural populations with information about livestock prices at secondary and terminal markets would be beneficial to the poor.
- the actual effects on poor livestock producers of the proposed open auction system are unclear and might be studied before extending it to Sudan's main livestock markets.
- expert opinions on the likely long-term effects of the free vaccine programme vary widely. Before continuing the programme it probably would be beneficial to seek out these opinions, including involving poor livestock owners in the discussions.
- increase the size and capabilities of the Ministry of Animal Resources and Fisheries and state ministries so that they can better plan and implement pro-poor livestock policies and projects.
- the different federal ministries and agencies that address pastoral and livestock issues seem poorly coordinated. The creation of a coordinating committee that can better plan federal livestock and pastoral development efforts might be worthy of consideration.

Regional Livestock Policy Issues

- the proposed dam on the Upper Nile and Jonglei canal is likely to have major environmental and welfare implications for the Southern Sudan. The Government of Southern Sudan (GOSS) might wish to consider impact assessments and feasibility studies of before moving forward with these projects.
- there is a marked lack of coordination in livestock marketing efforts in the Southern Sudan. GOSS may wish to consider one agency to oversee the livestock marketing system and coordinate the efforts of governments, producers and traders to improve livestock production and exports.

Recommendations for Donors

- political and strategic assessments need to be conducted as part of all development initiatives to examine the likely outcomes of policies and projects for the Sudanese poor, including livestock keepers.
- if GOSS moves forward with plans for a large hydroelectric dam and the Jonglei canal in Southern Sudan, support should be contingent upon a comprehensive study of the projects' social and environmental impacts, as well as fair compensation and adequate services for displaced populations and lost livelihoods.

Recommendations for the IGAD Livestock Policy Initiative

- readjudication of land claims for those areas of Sudan that have now achieved peace is high on both the national and sub-national agendas. Some of the land issues are common to other IGAD countries. The GONU and GOSS may welcome participation in an LPI-run IGAD-wide analysis and discussion of these issues.
- the GOSS is short of the technical capacity it will need to undertake its regional Land Commission process and may well welcome an officer from LPI to provide regionally-specific analysis and assistance.

- sudan's debates over the sedentarisation of pastoralists parallel those in many other IGAD countries and the country might benefit from LPI's addressing them in an IGAD-wide forum.
- many of Sudan's marketing issues also are common to other countries in the Greater Horn of Africa and the country almost certainly would benefit from an LPI effort to address them on an IGAD-wide basis.
- donor support of government projects, such as the Green Alert Programme should be contingent on land use and development processes being participatory, inclusive, and transparent at all levels of government.
- IGAD LPI should strengthen local level governance systems, producer groups, and Pastoralists Unions so that poor livestock owners can play a greater role in policy and project decisions that affect them.

INTRODUCTION

Livestock is vital to the welfare of large numbers of poor Sudanese. This paper evaluates the political economy of livestock and pastoralism in Sudan with a focus on how policies are formulated and could be improved to better serve the interests of poor livestock keepers.

Sudan is the largest country in Africa and the tenth largest country in the world, covering over 2.5 million km². Northern Sudan is characterised mainly by desert and semi-desert ecological zones as well as low rainfall savanna. Southern Sudan includes low rainfall savanna, high rainfall savanna, and the flood plain known as the Sudd. The defining geographical feature of Sudan is the Nile River. The White Nile enters Sudan from Uganda and the Blue Nile flows from Ethiopia; the confluence is at the capital Khartoum, from where the Nile River travels north to Egypt and the Mediterranean Sea. Sudan has a human population of 36-41 million and an official livestock population estimate of over 130 million (cattle, sheep, goats, camels).¹

Pastoralism and livestock are significant in Sudan's history as well as its present. Although statistical information from the government of Sudan is generally unreliable,² several sources interviewed for this project estimated that 80 to 90 percent of Sudan's households own livestock, with perhaps one third to one-half of all households reliant upon livestock for their livelihood. Despite the importance of livestock for Sudan's rural and urban poor populations, decades of development policies and projects in Sudan have promoted the horizontal expansion of crop production and marginalised livestock and pastoralism. Successive governments have seized vast quantities of rangelands and pasturelands to promote irrigated and mechanised rain-fed agricultural production, causing social, political, and economic disruption virtually throughout Sudan. The failure of past development efforts are evident in today's violent conflicts, massive population displacements, and extensive food insecurity. Recent peace agreements in Southern Sudan and Eastern Sudan provide opportunities for a reappraisal of past policies and creation of new practices to guide Sudan into peace and prosperity.

There is a pressing need for a re-evaluation of livestock policy in Sudan. As a result of recent peace agreements, new policies and institutions are being created in Sudan that will impact livestock and livelihoods for decades to come. There are numerous opportunities to build new pro-poor initiatives on the ashes of the flawed development policies of the past. Political power shifts create openings for participatory processes that could formulate policies that are equitable and just. In addition, oil-fueled economic growth can support the modernisation and growth of key institutions and fund much needed improvements in transportation, marketing, and communication infrastructure.

¹ See "Censuses" below for more discussion of Sudan's human and livestock statistics.

² This observation is based on my own reviews of government reports on human and livestock populations as well as economic statistics. The IMF (2006) notes: "The national accounts statistics suffer from a lack of basic information for many sectors, including oil, livestock, horticulture, and most services. On the expenditure side, data are lacking on final consumption by households, investment, and changes in stocks. There are no national accounts or industrial production data at sub annual frequencies. Furthermore, the annual data are being reported with a lag of over three years." The World Bank (2003) also notes the inadequacy of economic and agricultural statistics for Southern Sudan.

The current political and economic context of Sudan also presents significant constraints that may make meaningful change impossible. The income from oil production has overwhelmed agricultural and livestock production in economic importance, but more importantly oil has lubricated political machines that pay insufficient attention to improving the livelihoods of the Sudanese poor. The Darfur Peace Agreement is dead, implementation of the Comprehensive Peace Agreement (for the south) is disconcertingly slow, and the Eastern Sudan Peace Agreement is too new to significantly affect conditions on the ground. In particular, the escalation of the conflict in Darfur could divert energy and interest away from peace-building and pro-poor development efforts elsewhere in Sudan.

This analysis of livestock and pastoralism in Sudan was sponsored by the Livestock Policy Initiative of the Intergovernmental Authority for Development (IGAD LPI). The purposes of this project were (a) to describe the important political, civic and bureaucratic processes that surround formal and informal policy-making on livestock production in the IGAD countries and (b) to subject to a political feasibility test the various technical recommendations that others have made for livestock policy change in them.

The paper is based on six weeks of in-country fieldwork, supplemented with further library research before and afterward. I sought out those in the government, the donor community, academia, and the leadership of relevant livestock and other civil society organizations who are in a position to know and understand the political economy of the sector and the processes that shape its formal and informal policies and their reform. I sought those who had knowledge drawn from their own work and experience. I conducted forty seven interviews with individuals from the Ministry of Animal Resources and Fisheries, Food and Agriculture Organization, United Nations Development Programme, Animal Resources Services Company, Pastoralists Union, National Assembly, two universities, several nongovernmental organizations, and livestock markets at El Muwelih (Ombdurman) and El Obeid. For various bureaucratic reasons I was unable to visit Southern Sudan and had to rely on interviews with people in the north and external to Sudan, as well as various documents, for that part of my analysis.

This report is divided into two parts. Part I provides an overview of the policy environment in Sudan, including a discussion of the stakeholders, institutions, and organizations involved in the design and implementation of livestock policy in Sudan. Part II is an analysis of key issues for livestock and pastoralism in Sudan, including the National Congress Party's 2006 "Green Alert Programme" a review of regional issues for Darfur, Southern Sudan, and Eastern Sudan. Annexes A and B survey the livestock and production systems in Sudan.

PART I: POLICY ENVIRONMENT

Pastoralism Since Independence

The marginalisation of pastoralists that began during colonial times continued after Sudan achieved independence in 1956. Successive post-independence governments implemented colonial-era policies that excluded pastoralists from areas that could be used for settlement or were demarcated for

agricultural expansion (Ahmed 2002). The expansion of urban areas and large agricultural developments combined with the forced relocation of pastoralists to marginal areas contributed to environmental degradation and desertification in both North and South Sudan (Hulme and Trillsbach 1991). The civil war between North and South (1956-1972) further disrupted pastoralist livelihoods and development.

Post-colonial governments continued the colonial programmes of economic development concentrated on large-scale agriculture. Government policies of the 1950s and 1960s continued to favour large scale irrigation and mechanised agricultural projects (Adams and Howell 1979), but there was increasing investment during this period in the expansion of food production for the domestic market (O'Brien 1986). The military government of General Ibrahim Aboud, who took power after the 1958 coup, developed a ten-year Economic and Social Development Plan to cover the period 1961-1971. This plan ignored the traditional sector in favour of investment in the so-called modern sector; i.e. it focused heavily upon expanding the production of marketed agricultural crops and neglected the livestock sector and smallholder farming (Ibrahim 1999; Adams and Howell 1979).

Starting in the 1960s, veterinary services and disease control efforts increased in Sudan. Sudan participated in multi-country vaccination campaigns against economically disruptive livestock diseases, including the JP-15 (Joint Project of the Organization of African Unity) rinderpest campaign and the JP-28 contagious bovine pleuro-pneumonia campaign. As part of these efforts, Sudanese veterinarians received training and equipment. However, the failure to sustain surveillance, vaccination, and control measures after JP-15 led to incomplete efforts and the re-emergence of rinderpest in Sudan during the 1970s, as well as its spread to neighboring countries (Majok and Schwabe 1993; Majok et al 1991; Yilma 1989). The resurgence of rinderpest led the Organization of African Unity to launch the Pan-African Rinderpest Campaign (PARC) in 1986.

The 1969 coup that brought Sudanese Army officer Jaafar Nimeiri to power had profound implications for pastoralists. The new government enacted laws that resulted in the seizure of pastoral rangelands and migratory routes as well as disruption of local judicial and conflict resolution mechanisms. The 1970 Unregistered Land Act enabled the government to claim vast expanses of pastureland, rangeland, and migratory routes, setting the stage for massive land seizures and population displacement during the 1970s. The settlement of conflicts had traditionally been handled at the local level, but in the early 1970s the Nimeiri regime abolished the system of Native Administration in the northern provinces, replacing it with new systems of local government and legal councils that lacked legitimacy and often served the interests of political and economic elites (Al-Shahi 1991; cf. Keen 1994; El Arifi 1985; Morton 2005).

Nimeiri pursued development projects that marginalised pastoralists and small-holder farmers. In the early 1970s, Nimeiri marketed Sudan as the future "bread-basket" for the Arab world, attracting World Bank loans and agricultural investment from Saudi Arabia, Kuwait, and other Arab oil-producing countries (Kaikati 1980; Wai 1979). Large tracts of land were given or sold to private corporations and parastatals for mechanised rain-fed and irrigated agriculture,³ with the result that pastoralists were pushed to marginal areas or into the lands of farmers and other pastoralists, leading to conflicts (Hulme and Trillsbach 1991; Johnson 2003). The rapid shift towards export-oriented, mechanised agricultural schemes seriously disrupted the

³ This strategy increased the area under mechanized rain-fed agriculture by 2.56 million feddans by 1975; the irrigated agricultural area rose by 300,000 feddans (Gurdon 1991).

social and economic fabric of large areas of Sudan and eroded land use rights for pastoralists (Johnson 2003). Interest in commercial cattle ranches increased during the 1970s, but these projects either failed or never moved beyond the planning stage (cf. Kaikati 1980).

Also part of the bread-basket strategy was the plan to build the Jonglei Canal in southern Sudan to divert water away from the massive swamps in southern Sudan directly to capitalist agricultural development in Sudan and Egypt (Johnson 2003). When construction on the canal began in 1974, there was considerable local opposition based on the fact that the canal would cut through livestock migratory routes and negatively harm pastoral livelihoods (Majok and Schwabe 1996). In December 1983 the Southern People's Liberation Army (SPLA) attacked the canal and construction equipment, effectively ending this project (Niblock 1987).

Nimeiri's rule is also significant for the exploration and discovery of oil. Starting in 1974, the Government of Sudan granted concessions for oil exploration in central and southern Sudan to multinational oil corporations (Patey 2006). In 1978, oil was discovered in areas used for dry season pastureland (HRW 2003). During the 1980s the government supplied guns to Baggara pastoralists and used them to displace Nuer and Dinka pastoralists from rangelands designated for oil production⁴ (HRW 2003).

One success of the Nimeiri regime in the 1970s was achieving a peaceful settlement to the conflict in Southern Sudan. The Addis Ababa agreement in March 1972 gave the South considerable regional autonomy (Niblock 1987), and allowed for the establishment of veterinary services in Southern Sudan (Majok and Schwabe 1996). Peace also enabled a comprehensive cattle disease survey from 1979 to 1981 in the south's Bahr el Ghazal province (Majok et al 1991; Majok and Schwabe 1996).

Nimeiri brought peace to Sudan in the early 1970s, but the development path he pursued during that decade directly led to the resumption of conflict in the 1980s. The "breadbasket" strategy not only placed the government in massive debt, but also caused widespread social and economic problems by appropriating lands in the rain-fed North, displacing pastoralists, and disrupting migratory routes. Nimeiri's development policies also made the government of Sudan dependant upon international donors for funding and increasingly reliant upon NGOs for service delivery (Johnson 2003). As the government's legitimacy eroded and discontent grew in the early 1980s, the Nimeiri regime used Islam to shore up its domestic support; however this alienated large segments of the population, particularly in the South, where war resumed in 1983 after Nimeiri announced the administrative division of the South and imposed shari'a law on the nation (Niblock 1991; Johnson 2003; Hutchinson 1996). Nimeiri's overthrow in 1985 brought a brief return to multiparty politics in Sudan, but little relief to the Sudanese poor.

In addition to failed development policies and war, pastoralists had to contend with droughts that hit Sudan in the mid 1980s. In the semi-arid areas where pastoral livelihoods had already been disrupted owing to changes in land tenure and displacement for highly-capitalised agricultural schemes, the 1984-85 drought caused the deaths of millions of heads of livestock; for example the Beja of Eastern Sudan reportedly lost up to 80 percent of their animals (Johnson 2003). One source interviewed for this project noted that the '84-85 drought also produced a shift in livestock ownership from poor pastoralists to rich merchants, including government officials and military officers who accumulated large herds. In the South, drought in 1986-87

⁴ The onset of war in 1983 temporarily interrupted oil exploration in the south.

resulted in out migration of people and food insecurity, which in turn led to increased cattle raiding (Keen 1994).

Army Brigadier Omar al-Bashir has ruled Sudan since seizing power in a 1989 coup. During his rule, veterinary services have expanded, contributing to a reported increase in Sudan's livestock population, although official estimates of 130+ million may be excessively high (see "Censuses" below). Al-Bashir's rule has also been characterised by violent conflict, massive population displacement, oil production and export, as well as peace agreements and nascent social and economic recovery in some parts of the country.

Since 1989 there have been several important policy and legal changes affecting livestock production and livestock keepers in Sudan. The 1990 Amendment to the Civil Transactions Act confirmed that all non-registered land should be considered as if registered in the name of the State. In addition, the Amendment prohibited appeal against land adjudications made by the government, including dismissal of all cases before courts at that time (Justice Africa 2002). The 1998 Local Government Act theoretically confers important responsibilities for land management and regulation to provinces and localities, but in reality the central government retains a strong role in local decision making by appointing provincial commissioners who are loyal to the National Congress Party (NCP) (cf. De Waal 2005). De Wit (2001) notes: "In contemporary Sudan this [Local Government] Act should be considered as a challenge to the promotion of a transparent body for local governance that can set a framework for equitable land and other natural resources management in a development context." The 2000 Environmental Policy Act requires environmental impact assessments for big development projects, although the credibility and objectivity of these assessments is uncertain (cf. Kakonge and Imevbore 1993).

Since the early 1990s the regime of President Al-Bashir has adopted fiscal policies designed by the International Monetary Fund. Overall these policies are intended to create macroeconomic stability and introduce structural reforms while controlling inflation and creating a strong external position (IMF 2006; cf. EIU 2006a). These policies have resulted in privatisation of government corporations (e.g. Animal Resources Services Company), removal of veterinary drug subsidies, and transfer of vaccination service funding from the central government to the states (MONEC 2003). There is no Poverty Reduction Strategy Paper for Sudan, although the Joint Assessment Mission (2005) report effectively serves the same purpose.⁵

Livestock have historically been central to Sudan's overall economy, although in recent years oil production has become the dominant feature of the political economy of Sudan. Since 1999, livestock and livestock products (meat, hides and skins) have comprised approximately 20 percent of Sudan's annual Gross Domestic Product (Central Bank of Sudan 1999, 2001, 2005). As oil production has increased, however, the relative importance of livestock and livestock product exports as foreign exchange earners has declined. In 2005 oil was 82 percent (by value) of total exports while livestock and livestock product exports were just 3.2 percent (Central Bank of Sudan 2005a). The International Monetary Fund attributes the recent decline in livestock exports to "supply constraints (inadequate capacity at the port, deterioration in the road infrastructure), conflict in livestock-rich areas, and higher domestic demand" (IMF 2006).

⁵ See the European Union statement in this regard at http://ec.europa.eu/development/body/country/country_home_en.cfm?cid=sd&status=new, site visited February 6, 2007.

Myriad obstacles further constrain possibilities for forming pro-poor policies and restrict open dialogue about different policy options. Conflict, displacement, debt, corruption, and lack of a free press all point to a country in crisis, with little opportunity for the design or implementation of meaningful pro-poor policies. Out of an estimated population of 36-41 million in 2006, 4-6 million Sudanese are internally displaced and the World Food Programme distributes food to 4-5 million people every month (CIA 2006; USAID 2006; UNFPA 2006; UNHCR 2006a). UNDP's "Human Development Index" ranks Sudan 141 out of 177 countries (UNDP 2006). At the end of 2005, Sudan's external debt was US\$ 27.7 billion,⁶ of which US\$ 24.4 billion was in arrears (IMF 2006). In addition, Sudan is tied for 156 out of 163 countries on Transparency International's 2006 "Corruption Perceptions Index,"⁷ and ranked 139 out of 168 countries on Reporters sans Frontiers' "World Press Freedom Index 2006."⁸

The Comprehensive Peace Agreement and the New Sudan

The 2005 Comprehensive Peace Agreement (CPA) restructured political power and wealth sharing in Sudan, creating what some call the "New Sudan." For the Interim Period until national elections are held (in 2009), the CPA creates a Government of National Unity (GONU) that shares power between the National Congress Party (NCP), Southern People's Liberation Movement (SPLM), and other political parties that choose to participate in the government.⁹ The Executive Branch is headed by President Al-Bashir, with two Vice Presidents (one from the NCP and one from the SPLM) and a Council of Ministers. During the Interim Period, the National Legislature (National Assembly and Council of States) is appointed. Judicial powers are exercised nationally by a Constitutional Court, National Supreme Court, and court of appeals (CPA 2005).

The CPA also creates an autonomous Government of Southern Sudan (GOSS). During the Interim Period the borders of South Sudan are the boundaries as defined at independence in 1956, but these boundaries may be redrawn based on the work of the land commissions created by the CPA (see "Land Tenure" below). GOSS has a similar structure to GONU, with federal power invested in executive, legislative and judicial bodies. The CPA provides for a referendum (in 2011) in the South to determine whether the South will remain part of a unified Sudanese nation or secede and become its own country (CPA 2005).

The CPA restructures State government to provide for representation of NCP, SPLM, and other smaller parties. In Northern States there is majority representation of the NCP and in Southern States the SPLM is allocated majority power. Like the federal governments, the State governments have an executive branch (including council of ministers), legislative branch (State Legislature), and judiciary.

⁶ This represented 109 percent of Sudan's 2005 GDP; however the IMF (2006) projects Sudan's 2006 GDP to be US\$ 36 billion, which would change the percentage of debt per GDP downward.

⁷ Transparency International, "Corruption Perceptions Index 2006," http://www.transparency.org/policy_research/surveys_indices/cpi/2006, site visited 3 February 2007.

⁸ Reporters sans frontières, "World Press Freedom Index 2005," http://www.rsf.org/rubrique.php?id_rubrique=639, site visited 3 February 2007.

⁹ Young (2005) critiques the allocation of power in the CPA, arguing that "there is absolutely no reason to assume that the NCP and the SPLM come anywhere near representing 80% of the Sudanese people," although the CPA provides them with 80 percent of the seats in the National Assembly (NCP—52 percent; SPLM—28 percent).

The CPA includes a wealth sharing agreement that allocates oil revenue between GONU, GOSS, and the oil producing states (see “Southern Sudan” section below). The moribund Darfur Peace Agreement and nascent Eastern Sudan Peace Agreement also include wealth sharing provisions. Sudan’s economic growth of the last five years has been largely owing to foreign investment in the oil and gas sector (EIU 2006a). As noted by the IMF (2006), however, Sudan faces serious economic problems in the years ahead:

Despite an increase in oil revenues, the fiscal space of the central government will be constrained because of the transfers required by the peace agreement and decentralisation. These transfers, coupled with higher capital expenditures, will contribute to a substantial increase in pro-poor development spending. In this context, and to safeguard macroeconomic stability, an additional reorientation of expenditures is required, including through a reduction in fuel subsidies.¹⁰

Of importance for livestock owners, in 2006 the NCP announced the creation of the Green Alert Programme designed to boost crop and livestock production through 2010 (see “Green Alert Programme” below); however the persistence of conflict and instability in Darfur and Southern Sudan may limit implementation of this development programme.

Key Stakeholders and Institutions

Primary Producers

Pastoralists, agro-pastoralists, and sedentary farmers own and manage approximately 90 percent of Sudan’s livestock (Aklilu 2002; MONEC 2003). The social and economic significance of livestock for these primary producers varies across and within tribal groups, as well as geographically and temporally. There are relatively few purely nomadic groups left in Sudan that depend exclusively on livestock production for their livelihoods,¹¹ but nomads typically own the largest herds (Ibrahim 1999). Most livestock producers are transhumant or sedentary farmers who maintain herds but also engage in crop production and/or wage labor. Urban dwellers also maintain livestock including donkeys for transport and small ruminants and chickens for personal consumption or sale. The remaining ten percent of livestock producers are industrial production schemes located near Khartoum, including chicken and egg production facilities and dairy farms.¹²

Pastoralists Union

The Pastoralists Union was created in 1994 to represent and promote the interests of livestock keepers to the government and non-governmental organizations; however the membership is mainly traders, veterinarians, and rich herders. There are union organizations at the local, state, and national levels; the national Pastoralists Union has about two hundred members drawn from the state organizations. In 2005, the Government of National Unity

¹⁰ In accordance with IMF wishes, in September 2006 GONU reduced fuel, sugar and wheat subsidies, leading to peaceful protests in Khartoum that were violently broken up by Sudanese police. The NCP apparently also used the protests as a pretext to arrest leaders from the opposition Umma Party (Al Mahdi 2006; ICG 2006b).

¹¹ Ibrahim (1999) notes that nomadic groups make up around 11 percent of Sudan’s population and about 25 percent of Sudan’s livestock producers, but these figures should be taken as rough estimates given the inadequacy of Sudan’s censuses (see “Censuses” below).

¹² See Ibrahim (1999), Ahmed (2006), and OIE (2006). One company engaged in chicken, egg, and dairy production is the Arab Company for Agricultural Production and Processing, see <http://www.aaaid.org/english/membercountries.htm>.

appointed five members of the national Pastoralists Union to the National Assembly.

The Pastoralists Union initiates and influences livestock policies at the national and state levels, but some sources stated that the union is politicised, politically weak, and not representative of Sudan's poor livestock keepers (cf. Ali and Nimir 2003; McGrath 2001). At the national and state levels, the Pastoralists Union appears to function as part of the NCP apparatus (cf. Raziq and Ballal 2006). At the local level, however, there seems to be greater responsiveness in unions to the needs of poor livestock owners. Several sources suggested strengthening local level unions and ensuring that leaders are democratically elected in order to give poor livestock keepers greater political power and a voice in policy and project decisions that affect them.

Traders and Merchants

Traders and merchants move livestock through the commodity chain (see "Marketing System" below for more detailed information). Some traders are members of pastoral tribes who gave up livestock production to engage in trade. Other traders are independent small-scale traders (jelaba) or agents (wakils) or sub-agents for large merchants. These brokers in turn sell animals to export companies or butchers (for local consumption or export). Some of the large merchant and export companies are owned by companies based in Saudi Arabia or other Arab nations¹³ (see also "Livestock Marketing" below). There are also several associations of exporters, including associations for Meat Exporters, Live Animals Exporters and Skins and Hides exporters. These associations work closely with the Chamber of Commerce and are influential in the formulation of export-friendly policies (Aklilu 2002).

Political Parties

The National Congress Party (NCP) is the most powerful political force in contemporary Sudan. The NCP was created in 1998 out of the National Islamic Front (NIF), which sought an Islamic state based on shari'a law, although NCP has toned down its Islamic advocacy since the late 1990s (Young 2005). The NCP is nominally headed by President Omar Al-Bashir, although the party leadership wields significant power independent of Al-Bashir (ICG 2006b). The core support for the NCP comes from the elite of Northern riverine tribes with strong interests in agricultural production and trading (Young 2005), but the leadership of NCP includes many military leaders. The NCP is currently in charge of key ministries in GONU including Defense; Finance and National Economy; Energy and Mining; Justice; Agriculture and Forestry; and Animal Resources and Fisheries. The NCP also holds the office of Second Vice President (currently Ali Uthman Mohammed Taha) and majority status (52 percent of seats) in the National Assembly.¹⁴

The Sudan People's Liberation Movement (SPLM) is the second most powerful political entity in Sudan. In 1983, mutinies by southerners in the Sudanese army led to the creation of the SPLM/A and the resumption of civil war. The SPLM has its main base of support in Southern Sudan but it also has considerable political support in Northern Sudan, as demonstrated by the widespread popularity of the late SPLM leader John Garang and the wartime alliances between the SPLM/A and opposition groups in Darfur and Eastern

¹³ One example is the Saudi-owned Gulf Livestock Company, see <http://www.middle-east-online.com/english/sudan/?id=2626>, site visited November 3, 2006.

¹⁴ The NCP has minimal support in Southern Sudan, but the CPA provides for NCP minority representation in GOSS and the southern states (CPA 2006; EIU 2006b).

Sudan. In accordance with the CPA, the SPLM is accorded the First Vice Presidency (currently Salva Kiir); several GONU ministries including Foreign Affairs; minority status in the GONU National Assembly (28 percent of seats); Presidency of GOSS (currently Salva Kiir); and majority status in the GOSS legislature. The power base of the SPLM was strengthened in January 2006 with the signing of the Juba Declaration, which integrates the well-armed South Sudan Defense Force (SSDF) with the SPLA, which is now the official army of Southern Sudan¹⁵ (EIU 2006b). The ongoing crisis in Darfur has demonstrated the political weakness of the SPLM in the GONU, however, with the NCP directing the escalation of the conflict and setting national policy against deployment of a UN force in Darfur (ICG 2006b).

The NCP and SPLM currently dominate Sudan's political landscape although many smaller political parties and movements exist. Many opposition groups were organized through the Asmara-based National Democratic Alliance (NDA), which at its height in the mid-1990s included the SPLM, Umma Party, Democratic Unionist Party, Beja Congress, Rashaida Free Lions, Communist Party of Sudan, and other groups (ICG 2006a).¹⁶ The NDA brought together groups opposed to NIF and NCP, but it suffered from differences of opinion between Southern groups such as the SPLM and Northern groups such as the Umma Party¹⁷ (EIU 2006b). The NCP has skillfully exploited these differences over time, for example by excluding the NDA and dealing directly with the SPLM during the peace process that led to the CPA. Similarly, the ESPA was negotiated directly between NCP and the Eastern Front (the Beja Congress and Rashaida Free Lions; see "Eastern Sudan" below). The NDA reconciled with NCP in 2005, but while its members have taken up seats in the new National Assembly the national leadership of NDA is still negotiating with NCP over control of two federal ministries (Education, Science and Technology) and other political positions¹⁸ (EIU 2006b).

The political situation in Darfur is complex and dynamic. Since it was founded in 1945, the Umma Party has been the dominant political force in Darfur. It is based in the Sufi Ansar movement headed by Sadiq al Mahdi, with support among both agricultural and pastoral tribes. The Umma Party was the dominant political power in Sudan during the last period of parliamentary democracy, heading coalition governments with the Democratic Unionist Party from 1986 until 1989,¹⁹ when President Al-Bashir seized power. The Umma Party remains strong in Western Sudan and Khartoum (especially Omdurman).²⁰ The Umma Party reportedly has ties to many of the militias that have fought against the government since 2003 in Darfur.

The armed opposition in Darfur consists of numerous militias that have changed alliances over time (Flint and de Waal 2005). The NCP-SPLM peace negotiations that resulted in the CPA excluded groups from Darfur, leading the Sudan Liberation Movement/Army (SLM/A) in 2003 to escalate a simmering

¹⁵ A split in the SPLM/A in 1991 mainly along ethnic lines resulted in the creation of the mostly-Nuer SSDF; the SPLM/A became more predominantly controlled by people of the Dinka ethnic group (Jok and Hutchinson 1999; HRW 2003).

¹⁶ At its height, the number of signatories of the NDA charter reached 13 political parties and 56 unions and federations, armed factions, and political leaders. See <http://www.ndasudan.org/>, site visited October 30, 2006.

¹⁷ The Umma Party withdrew from the NDA in 2000 (ICG 2006). See also the Umma Party's web site, <http://www.umma.org/English.html>, site visited October 30, 2006.

¹⁸ See "Sudanese Government, NDA resume talks," Sudan Tribune, October 23, 2006, <http://www.sudantribune.com/spip.php?article18291>, site visited November 1, 2006.

¹⁹ These elections did not include Southern Sudan. The Democratic Unionist Party, "based in the Khatmiyya Muslim religious sect in eastern Sudan, traditionally headed by the El Mirghani family, also head of the Khatmiyya sect" (HRW 2003).

²⁰ In September 2006 the government arrested several Umma Party leaders in Khartoum for leading protests against reductions in government subsidies for sugar and fuel prices (ICG 2006b).

conflict and assert its desire for participation in the power and revenue sharing process (Middleton and O’Keefe 2006; Young 2005). In May 2006, only the Minni Minawi faction of the Sudan Liberation Army (SLA/MM) signed the DPA, giving Minawi special status as an assistant to President Al-Bashir.²¹ In June 2006, several groups that did not sign the DPA formed the National Redemption Front (NRF). The NRF consists of: the Justice and Equality Movement (JEM), “formed by factions within the SLM, by exiled dissidents and by Islamic fundamentalists, [which] appeared shortly after the SLM/A became active” (Middleton and O’Keefe 2006); several factions of the SLA, but not the important militia of Abdel Wahid Mohammed el-Nur (SLA/AW); and two leaders from the Sudan Federal Democratic Alliance (ICG 2006b). These groups and their future constellations will be part of Darfur’s post-conflict political landscape.

National Assembly

The National Assembly is the lower house of the National Legislature and consists of 450 members appointed by the government.²² The National Assembly’s Committee on Agriculture and Animal Resources develops livestock policies based on the input of the Ministry of Animal Resources, Pastoralists Union, individual members of the National Assembly, and other federal and state ministries. The Committee decides on a majority basis and forwards policy recommendations to the full Assembly where votes are decided on a majority basis. Bills approved by the National Assembly do not become law until approved by the President.

Ministry of Animal Resources and Fisheries

At independence in 1956, a separate Ministry of Animal Resources existed until 1969, when the military regime of Jaafar Nimeiri combined it with agriculture and irrigation into a Ministry of Agriculture and Natural Resources (Majok and Schwabe 1996). Within this new ministry, livestock concerns were subordinated to the Nimeiri regime’s “breadbasket” strategy that focused on the horizontal expansion of agricultural crops. Animal Resources became independent again with the return of civilian rule in the mid-1980s, but in 1989 the military regime of Omar al-Bashir re-incorporated Animal Resources into the Ministry of Agriculture. In 1996, however, the government created a separate Ministry of Animal Resources and Fisheries (MARF).

The Ministry of Animal Resources and Fisheries is responsible for controlling livestock diseases, regulating domestic and export trade, and formulating national livestock policy. It also coordinates with the state ministries of agriculture and animal resources on livestock issues, and posts veterinary staff to each state where they are under the direct supervision of the respective state ministry.²³ The current Minister is a retired Army officer, Brig. (Rtd.) Galwak Deng (NCP). Several sources interviewed for this project remarked that MARF is inadequately funded and politically weak, particularly compared with the powerful Ministry of Agriculture and Forestry, reflecting the historical dominance of crop production over livestock production in Sudan. One source commented on MARF’s inferiority by noting that the 2006 Green Alert

²¹ See ICG (2006b) for a discussion of concerns that SLA/MM is functioning as a paramilitary wing of the Sudanese military.

²² In accordance with the 2005 Comprehensive Peace Agreement, elections for the National Assembly are owing to take place by 2009. The legislature also consists of the Council of States, consisting of 2 members from each state (52 total) who are appointed by the President.

²³ The MARF also includes the Animal Health and Disease Control General Directorate. The Directorate runs three departments consisting of Animal Health, Epizootic Disease Control and Veterinary Public Health (Aklilu 2002). MARF appoints veterinary officers to serve in the states, but these officers report simultaneously to the Directorate and the relevant state-level ministry.

Programme was developed almost entirely by the Ministry of Agriculture and Forestry, with MARF brought into the process only three weeks before it was unveiled in July 2006.

The Government of Southern Sudan (GOSS) has created its own Ministry of Animal Resources and Fisheries. This fledgling ministry is understaffed (with just 5 people in June 2006) and struggling to establish its credibility and legitimacy. Increased capacity building and funding for this new ministry will be key to pro-poor livestock policy initiatives in Southern Sudan.

Animal Resources Bank

The Animal Resources Bank was created in 1993 to support the livestock sector in Sudan. The Bank is a private company in which the government owns 23 percent. The Bank focuses on helping livestock traders by providing them with trade finance, and it also “doubles as a trading house whereby it buys livestock from secondary and terminal markets and sells them at cost plus profit to exporters under a system called [Murabaha]” (Aklilu 2002).

The Animal Resources Bank operates two subsidiaries: the Animal Resources Services Company and the Animal Roads Company. The Animal Resources Services Company (ARSC) was also created in 1993, when the government privatised its predecessor, the Livestock Meat Marketing Corporation; as with the Bank, the government retains a twenty-three percent share of ARSC (ARSC 2004). ARSC is responsible for the development, promotion, and modernisation of livestock marketing. ARSC owns and supervises 11 markets,²⁴ which represent the principal livestock markets in Sudan. Herders or producers pay a per-head fee to enter the market. ARSC provides security at each market, and water, food, and veterinary care are available. ARSC also provides facilities for artificial insemination, supplies and distributes veterinary drugs, manufactures animal feed (molasses), and finances research. The Animal Roads Company plans to manage watering and staging points on stock routes as well as administer the livestock wagons currently under the control of the Sudan Railways Company (Aklilu 2002).

Ministry of Science and Technology

The Ministry of Science and Technology (MOST) is responsible for livestock research through its Animal Resources Research Corporation (ARRC). ARRC was created in 1995 as part of the Ministry of Animal Resources and Fisheries; however, since 2001 it has been part of the Ministry of Science and Technology. ARRC conducts research on animal diseases (with a focus on diseases that affect exports) and animal production (with a focus on breeding and nutrition). The ARRC runs several research centres including the Central Veterinary Research Laboratories Centre and the Animal Production Research Centre, which is involved in artificial insemination, breeding research, and programmes for managing genetic resources. ARRC is responsible for livestock research, but the Ministry of Animal Resources is responsible for extension services to transfer research findings to producers. Several sources interviewed for this project stated that although moving animal research back to MARF could improve coordination of the government’s livestock work, inadequate funding is the main impediment to better animal research in Sudan.

The Ministry of Science and Technology also runs the Agricultural Research Corporation (ARC). ARC conducts crop improvement research on food, feed,

²⁴ These markets are located in Darfur (El Fasher, Nyala, Al Daiein), Korofan (Kadogli, El Obeid), White Nile (Kosti, Rabak), Blue Nile (Sinnar), Gezeira (Wad Medani), and Khartoum (El Muwelih, Elsalam).

and industrial crops. It oversees sixteen research centers in northern Sudan. Some ARC research centers also conduct research on animal breeding, animal-drawn farm implements, livestock feed and fodder, and forage crops (El-Hag et al 1998; Osman et al 2005; Ahmed and El-Hag 2004; cf. World Bank 2003).

Other Federal Ministries

In addition to MOST and MARF, several other GONU ministries are involved in livestock and/or pastoral issues.²⁵

- the Ministry of Agriculture and Forestry has great political power within the government and affects livestock and pastoralism through its control of rangelands and pasturelands, and promotion of the horizontal expansion of agricultural crop production.
- the Ministry of Finance and National Economy distributes funds for the Ministry of Animal Resources and other ministries.
- in accordance with the 2005 CPA, the Ministry of Justice is facilitating and supporting the National Land Commission process to clarify land tenure in northern Sudan; the Government of Southern Sudan is setting up its own Southern Sudan Land Commission (CPA 2005).
- the Ministry of Environment and Tourism oversees the work of the Higher Council for Environment and Natural Resources, which coordinates the work of various federal ministries on issues of environmental protection and sustainable development.
- the Ministry of Foreign Trade issues livestock export licenses and puts minimum levels (called minimum indicative prices) on the export price of livestock and meat. It also chairs the Live Animals and Meat Export Promotion Council, composed mainly of exporters, to promote livestock exports (Aklilu 2002).
- the Ministry of Irrigation and Water Resources sets national policies for irrigation, water storage, and water delivery.

These ministries have counterparts in GOSS, although not all GOSS ministries are fully functioning.

State Governments

There are 26 states in Sudan: 10 in Southern Sudan and 16 in the North. Each state government has an executive branch (Governor and Council of Ministers), legislative branch (State Legislature), and judicial branch (State Judiciary) (CPA 2005). The executive branch includes ministries roughly based on the federal ministry system. State ministries are responsible for implementing federal policies as well as developing their own state-specific policies and programmes. The livestock sector primary falls under the state-level Ministry of Agriculture, Animal Resources, and Irrigation, which has responsibility for range and pasturelands and coordinates veterinary work with the federal MARF. State ministries are in general severely constrained by a lack of financial resources, facilities and equipment. States obtain some of their revenue from fees and taxes levied at livestock markets, but this may negatively affect efforts to promote exports (Aklilu 2002).

²⁵ Other ministries that work with pastoralists include the Ministries of Education, Health, Justice, and Social Care.

International and Local Organizations

International and local organizations directly and indirectly address issues affecting livestock and livestock keepers. International groups (governmental and non-governmental) provide important technical assistance and service delivery in Sudan. International organizations and financial institutions also supply significant funding for reconstruction and development.²⁶ Organizations working directly on livestock and pastoral issues include the Food and Agriculture Organization, United Nations Development Programme, International Fund for Agricultural Development, CHF International, and Veterinarians without Borders (see further discussion in “Role of International Organizations” below). Local non-governmental organizations also provide services and engage in development projects. Some groups, such as the Environmentalists Society, are involved in conflict resolution efforts and land tenure policy. In February 2006 the Sudanese government passed a new law regulating non-governmental organizations; this law could silence or exclude donors, international and local NGOs that are critical of government policies and practices (HRW 2006); however, this law and its potential impacts are beyond the scope of this paper.

²⁶ The World Bank (2006a) notes: “Out of a total of US\$4.5 billion [in foreign aid] pledged through 2007, about 38 percent has so far been reported. Overall reported assistance to the Sudan has increased significantly, from US\$383 million in 2003 to over US\$1.7 billion in 2005. While this was significantly driven by increased humanitarian assistance to Darfur, which peaked at US\$890 million in 2004, assistance to Southern Sudan rose to US\$680 million in 2005, with large shares of humanitarian and recovery support, alongside an increase in development assistance.”

Land Tenure

Changes in land tenure over the last two centuries have caused massive displacement, livelihood disruption, and civil conflict. Land theft and conversion of communal or smallholder land to private property started during the period of Turko-Egyptian rule (1820-1883). During the Condominium period (1898-1956), the British focus on large-scale crop production schemes resulted in large-scale population displacement and land enclosures, particularly in central and eastern Sudan.

Since independence, successive governments including the current NCP regime have continued colonial-era land seizures and development projects focused on horizontal expansion of agricultural production. As noted by Justice Africa (2002):

The current situation in many rural areas, especially Nuba Mountains, Southern Blue Nile and Northern Upper Nile, is that large tracts of land have been confiscated by commercial farmers with the support of the [NCP] government. No accurate statistics exist for the extent of large-scale land confiscation, because many mechanised farms have been set up or expanded on an opportunistic basis without formal registration, and because some of the allocations have been made in secret.

Government land policies—often developed and implemented with international technical assistance and funding—have eroded customary land rights, displaced hundreds of thousands of pastoralists and agro-pastoralists, and led directly to armed conflicts.

Government legislation regulating land and other natural resources has favoured individual rights over community rights, promoted commercial crop production over traditional land use systems (especially grazing), and represented national political and economic agendas over local interests (De Wit 2001).

Competition over land use has existed for centuries in Sudan, but public and private sector actions during the last two centuries have transformed intermittent low-level conflict into chronic severe conflict. Recent land use-related conflicts in Darfur and elsewhere in Sudan are not simply “old wine in new bottles” (De Wit et al 2005), but rather the result of complex changes in social and political power relations between groups over time. Social and political power shifts have combined with other factors such as increasing human and livestock populations, the discovery of oil, declining rainfall in semi-arid zones, and the proliferation of guns to make contemporary conflict in Sudan extremely destructive and difficult to resolve.

The importance of land tenure is reflected in the 2005 Comprehensive Peace Agreement and 2006 Darfur Peace Agreement. The CPA provided for the creation of a National Land Commission and Southern Sudan Land Commission, plus two state level commissions in the Blue Nile and South Kordofan (Abyei Boundaries Commission). These commissions will arbitrate land conflicts,

assess compensation, and develop new land policies and laws²⁷ (De Wit et al 2005; CPA 2005). The DPA also creates a Land Commission to ensure that the rights of refugees and IDPs to their land are properly respected, although the status of this commission is in doubt given the escalation of conflict in late 2006. These land commissions present an opportunity for pro-poor livestock policy initiatives, but the highly politicised issue of land tenure presents a constraint to the success of meaningful pro-poor interventions.

The Abyei Boundaries Commission (ABC) exemplifies the problems facing the Land Commission process and land tenure in general. The CPA includes a special agreement on Abyei that allows for a referendum to be held simultaneously with the 2011 southern referendum, on whether to remain part of the North or join the South (including an independent Southern Sudan) (ICG 2006a). The process was complicated owing to the massive displacement of native Ngok Dinka populations and claims of land rights by Misseriya transhumants. The ABC delivered its report to the Presidency in July 2006, but the report was rejected by the ruling National Congress Party. As noted by the Economist Intelligence Unit (2006), "the SPLM demands that Khartoum should accept the results of the ABC, [but] the [NCP] would prefer to define the region's boundary in such a way as to exclude the oil-fields in the north of the province." The dispute over ABC is negatively affecting relations between the SPLM and NCP and progress on other aspects of the CPA (ICG 2006a; EIU 2006a).

International donors and organizations participating in the Land Commission process need to ensure the participation of marginalised populations. Given that the GONU currently seeks to "settle the nomads" in Sudan, the Land Commissions will need to pay special attention to the needs and desires of nomadic groups if they are to be adequately protected. Formal, legal land tenure threatens the future of nomadic life in Sudan, for example by eliminating access to migratory routes and rangelands. Land Commissions ideally will seek guidance from nomadic groups and include them in the development and implementation of policies and laws to the greatest extent possible. Good process would involve the Land Commission's holding public meetings in rural areas with migratory pastoralists to both inform local populations about the Commissions' work and seek the input and involvement of local populations. The issue of women's rights is also significant, given that women are prohibited from owning land under many customary legal systems. Special outreach efforts to nomads and women need to include legal information and perhaps legal aid (cf. Polloni 2005).

As part of the Land Commission process, there could also be a re-evaluation of past land seizures and current land policies and laws, conducted either by the Commissions themselves or by international organizations and donors. According to Justice Africa (2002), "Some mechanised farms in Kordofan, Blue Nile and elsewhere have expanded beyond the registered area, or not been registered at all." In these cases, government legislation could order the return of seized land to the rightful owners or prior occupants, with due consideration to customary law and land rights. New legislation could reverse the 1990 Amendment to the Civil Transactions Act that prohibited appeal against land adjudications and seizures made by the government. International organizations and donors should encourage GONU and GOSS to extend legal land rights (including rights to pasture/rangeland and water points) to the Sudanese poor. De Wit (2001) recommends participatory land use planning at all levels of government and increasing the capacity of state and provincial/county agencies for land planning and management.

²⁷ As of October 2006, the National Land Commission had not been established. The Southern Land Commission has been appointed but is not yet functioning.

Land tenure issues, particularly as they involve pastoralists, are common among the IGAD countries and consistently involve deeply entrenched and powerful interests at the national level. One possible way to introduce new considerations into the debate and change its dynamics would be to address them in an IGAD-wide study and member-nation conference, organized by the LPI.

Green Alert Programme

In June 2006, the NCP unveiled the Green Alert Programme (aka Green Mobilisation) to promote the development of the agricultural and livestock sector in Sudan (MAF 2006). After NCP developed the programme, the Ministry of Agriculture and Forests and the Ministry of Finance and National Economy presented it to President Al-Bashir and the Council of Ministers, which approved it (Abu Saif 2006). The Green Alert Programme calls for 313 billion SD (\$US 1.4 billion) in expenditures between 2006 and 2010, with 60 percent coming from public sources and 40 percent from banks.²⁸ Including public and private funding, the Green Alert Programme allocates 56 percent of funds for irrigated and mechanised rain-fed agriculture, 37 percent for animal production, and the remaining 7 percent for forests, support for State Agricultural Administrations, pest control, research centers, seed production centers, and training centers.

The programme for the "Animal Wealth Sector" seeks to achieve increased animal production through the individual and cooperative efforts of the MARF, state ministries, banks, and private sector companies. The five categories budgeted to receive the largest amounts of public and private funds are:²⁹

- opening livestock tracks, broadcasting of pasture seeds and opening of fire lines: 20 billion SD (\$US 91.7 million³⁰) in public funds
- establishment of range farms and ranches for fattening: 16.6 billion SD (\$US 76.1 million) in private funds
- establishment of slaughterhouse and quarantine centers: 15.5 billion SD (\$US 71.1 million) in public and private funds
- settlement of moving herders: 15 billion SD (\$US 68.8 million) in public funds
- financing of veterinary drugs manufacture: 13.5 billion SD (\$US 61.9 million) in public and private funds

Other programmes of note include:

- mobile veterinary clinics: 10 billion SD (\$US 45.9 million) in public funds
- improving of milk industries: 5 billion SD (\$US 23 million) in private funds
- construction of haffirs, bore wells and earth dams in the livestock raising areas: 3.4 billion SD (\$US 15.5 million) in public funds
- cultivation and processing of forages: 3.4 billion SD (\$US 15.5 million) in private funds

²⁸ The programme calls for 59 percent of government funding over the period 2006-2010 to go to irrigated and mechanized rain-fed agriculture, with 31 percent of government funding to support animal production (excluding fish). The programme calls for 50 percent of bank funds over the period 2006-2010 to go to irrigated and mechanized rain-fed agriculture, with 41 percent of bank funds to support animal production (excluding fish).

²⁹ Figures are for the period 2006-2010.

³⁰ Calculated at a rate of 1 \$US=218 SD (July 2006 rate).

- poultry production: 2 billion SD (\$US 9.2 million) in private funds
- study of constructing water canals across the national pastoral collections: 500,000 SD (\$US 2.3 million) in public funds

GONU is now seeking the assistance of international organizations, donors, and companies to implement the Green Alert Programme.

The focus of the Green Alert Programme is on increasing crop production. To accomplish this, the programme calls for greater productivity but provides for massive horizontal expansion of land under cultivation. It plans to increase by 50 percent the area under cultivation by traditional rain-fed farming, traditional irrigated farming,³¹ and the White Nile, Blue Nile, and River Nile irrigated schemes. The programme will start the recovery of mechanised rain-fed agricultural production in the Nuba Mountains, focused on cotton production. The programme also lists as an objective the "introduction of livestock raising [for rain-fed traditional farming] to increase the farmers income" (MAF 2006).

The Green Alert Programme includes projects for Southern Sudan, which will be carried out by GONU in collaboration with GOSS (MAF 2006):

- establishment of pilot farms to maintain food [self-sufficiency] instead of relying on relief.
- assessment of the current national schemes in the South with the aim of revitalising them.
- assessing the possibility of establishing new schemes along the rivers and the rain fed farming potentialities in the South to produce food.
- production of tropical crops such as cotton, tea, coffee and other horticultural products.
- study the possibility of promoting livestock production in the South.

The amount of money to be spent on these projects is unclear in the planning document. The only South-specific entry is for the "Study of the agricultural projects in South Sudan," which is budgeted for 230 million SD (\$US 1.06 million) over the period 2006-2010.

Overall, the Green Alert Programme looks much like the development plans of old which sought to expand large-scale commercial and mechanised crop production at the expense of livestock owners and pastoral livelihoods (cf. De Wit 2001). The Green Alert Programme reflects the historical dominance of agricultural crop production for the Sudanese economy, but it also supports agricultural and trading interests within the National Congress Party.³² One source interviewed for this project described the Green Alert as simply a restatement of earlier programmes that focused on crop production and neglected livestock production. This source also questioned whether the states have the capacity to implement the Green Alert's programmes. Another source described the Green Alert Programme as "political" and "just words."

³¹ This is farming for which water for irrigation is supplied by floods, basins, small pumps, haffirs, and bore wells.

³² For example, the Arab Authority for Investment and International Development (AAIID) has partial ownership in several parastatals in Sudan, including agricultural projects in White Nile and Blue Nile states that will benefit from the Green Alert Programme. AAIID also has a stake in poultry and milk production companies, which are also targeted for expansion under the Green Alert Programme. On AAIID's Board of Shareholders sits H.E. Mr. AL Zubeir Ahmed Hassan (Minister of Finance and National Economy, Sudan); on the Board of Directors of AAIID sits H.E. Dr. Hassan Ahmed Taha (Under Secretary to the Minister of Finance and National Economy, Sudan) (AAIID 2005). See the list of Agricultural Projects posted by the Sudanese Ministry of Investment at <http://www.sudaninvest.org/>, site visited November 3, 2006.

The programme for the Animal Wealth Sector is designed to increase livestock production to meet domestic demand and increase exports of livestock and livestock products. Several aspects of the programme could benefit poor livestock owners, such as expansion of mobile veterinary clinics and incorporation of livestock foraging into crop production schemes.³³ However, other parts of the programme raise serious questions about the effects they will have on poor livestock owners. For example, the creation of private sector ranches could accelerate the trend of concentrated livestock ownership and potentially turn poor livestock keepers into wage laborers (cf. Duffield 2002). Green Alert places a strong emphasis on private sector development in the livestock sector, for example through support for industrial poultry and milk production, which could limit the entry of small-scale or community-driven projects into the marketing system. Private sector fodder production will provide fodder for livestock keepers during the dry season, but this may require livestock keepers who are accustomed to free access to rangelands and pasture to now pay for animal feed. The resurrection of the Jonglei canal project within the Green Alert Programme could have profound implications for pastoral livelihoods in Southern Sudan (Willow 2006), and its effects should be carefully evaluated and addressed before this project moves forward. Finally, the plan to settle the nomads raises numerous questions about the social, political, economic, and environmental effects of such a scheme (see “Settling the Nomads” below).

The Green Alert Programme appears to be a continuation of past development policies that claimed they would help poor livestock owners but marginalised them instead. International organizations and financial institutions should carefully review the details of projects they are asked to support or participate in—such as the settlement of nomads—to consider the likely impacts on poor and vulnerable populations. More specifically, international organizations and funders should consider making their money or technical assistance contingent upon participatory involvement of nomads and other affected poor livestock owners in the design and implementation of Green Alert projects.

As with land tenure issues, the issue of sedentarisation of pastoralists is common to most of the IGAD countries. The one thing that all IGAD countries have is pastoralists and it was that feature that led to the initial creation of IGAD. The sedentarisation issue therefore probably is best addressed in an LPI-organized IGAD-wide forum.

Settling the Nomads

One of the long-standing controversies in Sudan is over plans to “settle the nomads.” The censuses of 1955 and 1976 estimated the nomadic population at about 11-13 percent of Sudan’s total population, concentrated most heavily in Darfur, Kordofan, and Kassala (Khogali 1979; cf. Ahmed 2002). Nomads are generally considered to be constantly on the move with their animals, but Morton (2005) notes:

The division between settled and nomad is largely false. There is a continuous spectrum between those who are wholly dependent on cultivation and those wholly dependent on livestock. Only a few are at either end of the spectrum. The majority are somewhere in the middle.

³³ Although the Green Alert Programme provides for creating water points, it is not clear if these water points would be located along migratory routes or routes traveled by traders and herders on their way to markets.

In the last few decades, many people classified as nomads in Sudan have “voluntarily” settled as a result of drought (esp. the 1984-85 drought), conflict, or new economic opportunities (Morton 2005; Khogali 1979). Some have pursued wage labor in cities or on farms, while others have retained livestock but also taken up small-scale agriculture or engaged in trade.

The desire to settle migratory pastoralists has been directly or indirectly expressed for decades in Sudan’s development projects. Some development schemes pursued by the government (with international assistance) expressly sought to settle nomads (Thimm 1979; Khogali 1979), while others intentionally displaced nomads from rangelands or migratory routes to facilitate urbanization or crop production (Ahmed 2002; Majok and Schwabe 1996; Johnson 2003). Nomads who chose not to settle were able to adapt, but some were forced to take their animals to areas unsuited for grazing and then blamed for overgrazing and desertification (Ahmed 2002).

The issues of overgrazing and desertification have been inadequately studied in Sudan and the causes of desertification are subject to debate and interpretation. Episodic drought, the southward drift of isohyets, fires, and deforestation are cited as causes, but pastoralism is often singled out for blame (cf. Mensching 1979). The drilling of boreholes to provide drinking water for human and livestock populations has caused degradation and desertification in some areas (Ibrahim 1993), but these boreholes were drilled as part of poorly-planned development projects and their effects cannot be simply blamed on either livestock keepers or pastoralism. A study by Turner (1998) on desertification in Sahelian landscapes found that inter-annual fluctuations in rainfall are more significant than anthropogenic degradation, and that Sahelian annual rangelands are generally less fragile and more resilient to grazing than commonly assumed. A study by Babiker (1982) describes the role of urbanization in causing desertification through the unsustainable harvesting of wood to satisfy urban demand. The increases in the human and livestock populations³⁴ during the last few decades have undoubtedly had effects on grasslands, but desertification is a complex issue that has become politicised as the government seeks rationalisations for policies that marginalise pastoral populations, privatise rangelands and pasture, and appropriate surpluses from livestock production (cf. Blaikie 1985).

The desire to settle the nomads stems not only from a desire to control the lands they use, but also from a perception that the nomadic lifestyle is “backward and irrational” (cf. Ahmed 2002). In arguing in favour of settling nomads, Khogali (1979) claims that “nomadism has several important disadvantages, such as extensive and destructive use of natural resources, inefficient use of human resources, and a marked inability to use social services.” This belief is reflected in the government’s 2006-2010 Green Alert Programme, which provides government funds for the “settlement of moving herders” to achieve the “rational utilization of the animal wealth” and “provision of the essential services to the pastoralists” (MAF 2006).

Plans to settle nomads are couched in the language of modernisation and development, but coercive efforts to settle people by privatising pastures and converting them to large-scale crop production may have unforeseen social and economic effects. Some nomads wish to settle and will voluntarily do so when social services are provided to them (Khogali 1979), but without the participation of nomadic populations in the design and implementation of development projects, the voluntary nature of settlement may simply be a myth: nomads will be forced to settle in order to survive. The government and

³⁴ See Annex A for information about the increases in Sudan’s livestock populations.

its international partners in the Green Alert Programme should re-evaluate current plans to settle nomads until the nomads' needs and desires are taken into consideration. This could be accomplished through direct consultation and participatory involvement with nomadic populations, or through the creation of grassroots-oriented pastoralists unions that can give voice to nomadic and transhumant knowledge about current conditions and new development strategies. International organizations supporting the Green Alert Programme, such as the Food and Agriculture Organization, could make their assistance contingent upon the greater participatory involvement of nomadic populations in government planning and project implementation.

Censuses

There is an urgent need to ascertain the human and livestock populations and survey the status of natural resources in Sudan. Decades of conflict, large-scale development projects, and recurrent drought have forced millions of people to migrate within Sudan or to neighboring countries. These same factors have resulted in the theft, death, dispersal, or transfer of ownership of innumerable livestock. Conflict, development, and drought have also caused degradation and destruction of natural resources, including rangelands and pasturelands. The result is an incomplete and inaccurate understanding of Sudan's human population, livestock numbers, and natural resource conditions.

Estimates of Sudan's current human population range from 36.2 million to 41.2 million people (World Bank 2006; UNFPA 2006; CIA 2006). There are between five hundred and six hundred ethnic groups in Sudan (Middleton and O'Keefe 2006). As part of the CPA, in 2007 Sudan will undertake a new national population census (CPA 2005). The census faces many obstacles, however, including insecurity, shifting populations, poor infrastructure, and lack of staff experience in conducting population surveys (USAID 2006). The results of the census will help determine political representation and civil service participation at the national level (CPA 2005), but by providing data on occupations and place of habitation, the results will also inform policy interventions and development projects for pastoralists and agro-pastoralists (cf. Sudan Vision 2006). The two governmental agencies undertaking censuses³⁵ and the international donors and agencies assisting them (e.g. USAID, UNFPA, World Bank) need to ensure that adequate resources are devoted to the censuses, that surveys make special efforts to count nomadic or transhumant populations, and that pastoralists and agro-pastoralists are accurately coded to identify the total population of Sudan reliant upon livestock for their livelihoods.

The last national livestock census in Sudan was conducted in 1976. The Sudan National Livestock Census and Resource Survey used aerial surveys to estimate livestock numbers and distribution; concurrent household surveys provided additional information about livestock populations and diseases (Morton 2005). Since the 1970s, additional livestock (and resource) surveys were conducted of specific regions or localities, particularly those targeted for development (Wilson 1979; Morton 2005). Since the early 1980s, recurrent drought and persistent conflict have significantly disrupted livestock and human populations, leading to millions of premature deaths, massive population shifts, and new migratory routes.

³⁵ The Southern Sudan Center for Censuses, Statistics and Evaluation will undertake the census in Southern Sudan, and the Central Bureau of Statistics will undertake the census in the rest of the country.

Although increased veterinary services during the last two decades have reportedly increased livestock survivability and herd sizes, the lack of a comprehensive national census is a constraint upon effective policy and technical intervention. Sudan's Animal Resources Services Corporation and Ministry of Animal Resources and Fisheries produce annual estimates of livestock populations (ARSC 2004), but the official figures (topping 130 million in 2003 for cattle, sheep, goats, and camels) are believed to be optimistic; several interviewees estimated the government numbers may be 15-25 percent too high.

The Ministry of Animal Resources and Fisheries is helping to plan a new national livestock census in 2007, but the lack of security in many parts of Sudan may limit the conduct of fair, credible and legitimate assessments. In addition, the highly politicised nature of livestock in areas subjected to cattle theft and population displacement could potentially affect the process and outcomes of a census conducted by the national government. Censuses could provide valuable information about livestock numbers, distribution, ownership, management, and production systems, but in areas experiencing or emerging from conflict, censuses may serve to create "facts" that legitimate past land or animal seizures.³⁶

One source interviewed for this paper cited the urgent need for a "land census" to determine the current status and size of pasturelands, rangelands, migratory routes, and trade routes. The 1976 national census included surveys of vegetation, geomorphology, soils, drainage, topography and use (Morton 2005), and subsequent surveys have used a variety of techniques including satellite imagery analysis to evaluate terrestrial conditions (Wilson 1979). The United Nations Environment Programme (UNEP) conducted a national environmental assessment during 2005-2006, but the findings and specificity of this work could not be determined by the author as of February 2007. Given the persistence of conflict in large parts of Sudan, efforts to evaluate the status of natural resources and land use may be incomplete and lack on-the-ground verification of imagery analysis. Peace presents an opportunity for a long-overdue national assessment of natural resources and land uses, but conflict acts as a constraint.

Marketing System

The livestock marketing system starts with the primary producer and moves through various stages of middlemen to wholesale, retail, and export outlets. Sudan's major livestock markets (except Kosti) operate on a "silent auction" system whereby the price for livestock is negotiated by a broker who communicates separately with a buyer and seller. Animals are sold by group prices (not by weight), and the purchase price is known only to the buyer, seller, and broker (ARSC 2004; Aklilu 2002). Supplies at terminal markets vary seasonally and are affected by armed conflict, environmental conditions, and political instability. Major production areas are generally 600-1,400 km from terminal markets, to which livestock are transported on hoof, by truck, or on rail. The primary producer may receive as little as one-eighth of the export (free on board) price (World Bank 2003; cf. Morton 2005).

³⁶ Some reviewers of this report believe it is important to move forward with the censuses despite the persistence of conflict, because they believe that censuses would assist in better planning and funds allocation and consequently sound development projects that will hasten the peace processes in conflict areas.

The marketing system in Sudan is dominated by middlemen (brokers). Aklilu (2002) describes the commodity chain:

Some of these brokers may work as independent small-scale traders (*Jelaba*) and some as agents (*wakils*) or sub-agents for the big traders. The brokers collect cattle and [small ruminants] from the scattered villages and sell them to another broker in the primary markets. The second broker may sell to a third broker in the same market or in a secondary market and this process goes on until the livestock are bulked into larger lots and reach the terminal markets. The final transaction in the terminal markets is also processed through brokers. Agents or sub-agents also organize the trekking of cattle to the terminal markets for the big traders. Livestock are said to change hands a minimum of two and a maximum of six times between points of purchase and the final point of sale.

At the final point of sale, animals are transported to Port Sudan for live export or slaughtered for domestic consumption or export.³⁷

The role of middlemen is widely perceived as a weakness in Sudan's marketing system, hurting producers, consumers, and exporters alike. Producers generally sell when they need cash, but under the current marketing system payments to producers are often deferred. Traders and brokers pass the risks of livestock sales to producers, who are paid only after a final sale, but sometimes not at all (Aklilu 2002). Producers also may lack information about prices at the terminal market or internationally that could inform their decisions to sell animals. Consumers are believed to suffer because middlemen (and taxes) are blamed for unnecessarily increasing the cost of meat in livestock-rich Sudan.³⁸ Exporters reportedly suffer when middlemen drive the cost of livestock close to the international price, thereby cutting into the exporters' profits.

In addition to middlemen, large traders also distort the livestock marketing system. As noted by The World Bank (2003):

Five major traders have traditionally dominated the terminal livestock markets in Sudan. While this is typical of many livestock markets in the world, the government's recent decision to give export authority for Sudan's trade with Gulf countries to only one trader has changed substantially the dynamics of both the domestic and export trade to the detriment of the producer because competition for export quality animals has been weakened. This change in the export marketing arrangements for livestock to Sudan's main customers from a competitive one to a monopoly will have immediate and long-term detrimental effects on Sudan's livestock producers and cannot be justified on any basis. Those who will suffer most will be the poorer small-scale producers.

The government's decision to invest control of the export of Sudanese livestock to the Arabian peninsula in one firm³⁹ is part of a broader government-led restructuring of export firms following the 2000-2001 collapse of Sudanese livestock exports.⁴⁰

³⁷ For a more detailed description of the marketing system in Sudan see Aklilu (2002); marketing in Darfur is described in Monec (2003), Young (2005) and Morton (2005).

³⁸ According to prices of consumer goods listed daily in the Sudan Tribune, during June-August 2006 the price of a kilo lamb meat ranged from 1,250-1,500 Sudanese Dinars (SD); the price of a kilo of beef ranged from 900-1,200 SD. The exchange rate in June was \$U.S. 1=221 SD; in August the rate slid to \$U.S. 1=215 SD. The rate in \$U.S. was therefore roughly \$5.75 to \$6.90 for a kilo (2.2 lbs.) of lamb meat and \$4-\$5.50 for a kilo (2.2 lbs.) of beef.

³⁹ This is the Gulf Livestock Company owned by Saudi Prince Al Waleed bin Talal (Africa Analysis 2002).

⁴⁰ In the last several years the Government of Sudan imprisoned owners of some Sudanese export companies, reportedly for failure to pay debts. This led to a sharp reduction of export companies operating in Sudan, from 25 to 12 by 2002. The Government previously set minimum indicative prices for livestock export prices owing to concern that export companies were under-reporting export prices (Aklilu et al 2002).

In the last decade the government has sought to increase exports of livestock and livestock products.⁴¹ Sudan's livestock exports fell dramatically in 2000-2001,⁴² however, when Saudi Arabia and other Gulf countries temporarily banned imports of live animals from Sudan (World Bank 2003; ARSC 2004). Since 2002 Sudan's livestock exports have rebounded, but they constitute a smaller part of non-oil exports than during the 1990s (cf. Aklilu 2002; World Bank 2003). Oil currently dominates Sudan's exports. In 2005, oil accounted for 82 percent of Sudan's total exports by value; livestock and livestock products were just 3.2 percent of exports by value (or nearly 18 percent by value of non-oil exports)⁴³ (Central Bank of Sudan 2005).

In 2003 President Al-Bashir issued a set of directives to spur livestock exports, putting the Ministry of Foreign Trade in charge of re-organizing and improving Sudan's livestock markets. In November 2003 the Ministry directed the creation of a pilot Cattle Auction Project at El Muwelih market in Omdurman (ARSC undated). This project would require payment in cash at the time of transaction and sale by weight and open auction, theoretically improving the overall efficiency and transparency of the marketing system (ARSC 2004). If the project succeeds at El Muwelih it will be replicated at other livestock markets, but for now, the auction project is stalled owing to problems in organizing financial services to facilitate cash payments (ARSC undated).

The implications of improved market facilities, open auctions, and increased exports for poor livestock owners have been inadequately studied. Overall the changes in the livestock marketing system appear designed to give the government increased control over markets and transactions. More exports mean more revenue for the government, but it is not clear that this will actually lead to higher prices and livelihood security for primary producers. In addition, the control of the marketing system by a few firms adversely affects poor livestock producers. Pro-poor initiatives could include legislation to break the monopoly of the few trading firms currently controlling the domestic and export markets. Another initiative could be the establishment of communication networks that could provide rural populations with information about prices at secondary or terminal markets. In addition, the proposed auction system could result in greater security and profit for primary producers; however there should be a diligent study of its actual effects—particularly for poor producers—before the auction system is extended to other markets. These marketing issues are not unique to Sudan and an IGAD-wide study of them by the LPI might be an effective and acceptable entry-point.

Taxes and Fees

Taxes and fees on livestock are levied throughout the marketing chain, from the village level all the way to the terminal markets. At the village level, annual per-head livestock taxes are collected by local leaders at different rates for different classes of stock (Morton 2005; Aklilu 2002). These taxes are an important source of revenue for local-level governments. When livestock are sold by primary producers and enter the commodity chain, twenty or more taxes and fees may be levied before they reach terminal markets in Khartoum

⁴¹ In the government reports reviewed for this project, there was contradictory information about livestock and meat exports as well as local consumption, making comparisons and analysis difficult (ARSC 2001; ARSC 2004).

⁴² Exports of live animals and meat fell from US\$114 million in 1999 to US\$24 million in 2001 (World Bank 2003).

⁴³ Live animals were 13.1 percent of non-oil exports by value, meat was 2.1 percent, and hides and skins were 2.5 percent.

or Port Sudan (Aklilu 2002; cf. Williams 1990). These taxes and fees combined with successive price mark-ups by brokers and traders may make export (free on board) prices up to eight times the amount the primary producer received (World Bank 2003; cf. Morton 2005; MONEC 2003). In some cases these taxes or fees are used to pay for services, such as for veterinary care or water access and grazing (Morton 2005; Aklilu 2002), but some sources and traders interviewed for this paper report that fees (money or in-kind livestock) are sometimes collected to ensure safe passage through an area in a form of extortion. Taxes on traders and exporters affect the producer price and export markets,⁴⁴ and could therefore be reformed by the National Assembly to become pro-poor (Williams 1990; Morton 2005).

Some sources interviewed for this paper suggested that increasing the per-head tax paid by primary producers would lead to increased off-take, thereby reducing the price of meat domestically and helping to address problems associated with perceived overstocking. This proposal has theoretical merit, but in reality increasing taxes on livestock owners could also cause serious problems, for example by upsetting cultural traditions that value large herd sizes or reducing the economic security of households that use livestock as a source of wealth. The feasibility of collecting these taxes is also uncertain considering the history of tax evasion at the local level owing to underreporting of herd sizes. Increased taxes on primary producers are imprudent until there is further study of the social and political effects of new taxes, a census of livestock, and an assessment of Sudan's natural resources (cf. Morton 2005).

Disease Control

Livestock disease control in Sudan is challenging owing to the sheer size of the country, the ease of border crossings with neighboring countries, the size of the livestock populations, and the difficulty of reaching migratory populations. For Sudan's main livestock (cattle, sheep, goats, camels), disease control efforts are focused on vaccination, screening at quarantine centers prior to export, and training of community animal health workers (CAHWs) who administer drugs and vaccines on a fee-recovery basis. The federal government retains responsibility for controlling infectious diseases and states are responsible for control of general diseases. The federal government produces and distributes vaccines but the private sector provides animal medicines.

Disease control efforts in Sudan are largely conducted and/or funded by international organizations (e.g. FAO, UNICEF, VSF) and local non-governmental organizations, with the cooperation of the government. The Sudanese government coordinates its disease control efforts through the *Animal Health and Disease Control General Directorate*, which is administratively under the Ministry of Animal Resources but receives funding and support directly from the Ministry of Finance and the Ministry of Science and Technology (Aklilu 2002). One noteworthy success of recent government and international disease control efforts is the eradication of rinderpest from Sudan (OIE 2006c; cf. Catley and Leyland 2001).

⁴⁴ Since 2002 the Ministry of Finance has suspended export taxes for live animal and meat exports (Aklilu et al 2002). The Ministry continues to levy a 15 percent tax on raw skins and hides and a 2-3 percent export tax on semi-processed skins and hides (Morton 2005; cf. MOF undated).

Several sources noted that owing to institutional and funding constraints as well as misallocation of funds and corruption, the Sudanese government is unable to respond to all disease outbreaks. When outbreaks occur the diagnosis is usually based on clinical findings but not confirmed by laboratory diagnosis. In addition, disease control efforts are focused on economically-damaging outbreaks, such as rinderpest and avian flu, which attract international funding and technical assistance.

The government is in the midst of a three-year programme providing free vaccines for livestock, but the programme is plagued by problems including inadequate vaccine supplies. Sources interviewed expressed different views about the wisdom of continuing the government's free vaccination programme. Some sources argued this policy would help poor livestock owners, while others argued that livestock keepers would become dependant on free vaccines and refuse to pay for them when the programme ends in 2007. The free vaccine policy was created by a decree from President Al-Bashir, but the future of free vaccines should be studied and discussed by a broader audience, including poor livestock owners.

In 2006, avian influenza (H5N1 strain) emerged as a serious concern in Sudan. In March 2006 the first cases of avian influenza were confirmed near Khartoum, leading to the culling of over 100,000 chickens from large poultry farms around the capital⁴⁵ (OIE 2006a; Sudan Tribune 4/24/06). In September 2006, avian flu was confirmed in chickens and ducks in Juba in South Sudan, leading the South Sudan Ministry of Animal Resources to ban live birds from being taken out of Juba (OIE 2006b; Sudan Tribune 9/20/06). The outbreak and spread of avian flu in Sudan could have profound implications for poor households throughout Sudan. The deaths of large numbers of poultry owing to disease or culling for control purposes would deprive already impoverished populations in Sudan of an important source of dietary protein (WHO 2005). International organizations are working with government agencies to address avian flu, but special attention should be paid to monitoring and outreach for Sudan's non-industrial poultry producers, i.e. those living in displaced persons camps, rural areas, and cities and towns.

Aside from the spread of avian flu, perhaps the most serious disease control challenge facing Sudan today is insecurity in pastoral areas, which limits vaccination efforts, disease surveillance, and monitoring of livestock moving across international boundaries. While insecurity is a constraint, peace offers an opportunity for improved disease control efforts. Policies that promote the training and support of CAHWs should be encouraged, particularly for populations and areas where displaced persons are returning to their homelands. Several interviewees suggested that there should be greater oversight of CAHWs, perhaps by having them supervised by veterinary doctors.

Landmines and Explosive Remnants of War

Landmines (anti-personnel and anti-tank mines) and explosive remnants of war (unexploded ordnance and abandoned ordnance) threaten the lives and livelihoods of poor pastoralists and agro-pastoralists in Sudan. There has been no comprehensive survey of affected areas, but mines and explosive remnants

⁴⁵ A July 17, 2006 article in the Sudan Tribune stated that an advisory committee of the Ministry of Animal Resources reported that the productive loss from the avian flu outbreak was 500 million SD (US\$ 2.3 million; \$1=218SD) distributed among 119 farmers (Makony 2006). However, a July 5, 2006 article in the Sudan Tribune put the total loss in at 2.468 billion SD in Bahri (North Khartoum), Khartoum, Omdurman and Gezira sectors (Rasha 2006).

of war (ERW) may affect 21 of Sudan's 26 states⁴⁶ (Landmine Monitor 2006). Of particular concern for pastoralists and agro-pastoralists, mines have been placed along livestock migratory routes and in rangelands, killing and maiming herders as well as animals and negatively impacting pastoral livelihoods (McGrath 2001).

The United Nations Mine Action Office⁴⁷ in Sudan is working with GONU to coordinate efforts to identify and clear areas affected by mines and ERW, as well as educate populations about explosive hazards (UNMAS 2005). In 2005, Sudan received \$48.4 million in mine action funding (an increase of \$33.4 million over 2004), which placed it second in the world for such funding behind Afghanistan (Landmine Monitor 2006). Insecurity remains a threat to mine clearance operations, (especially in Southern Sudan) and government restrictions on travel are limiting assessments of mine/ERW effects (particularly in Eastern Sudan) (Landmine Monitor 2006). Future interventions in this area could give special consideration for clearance of migratory routes and rangelands as well as increased educational outreach to pastoralists and agro-pastoralists. Other initiatives both within the government and by international organizations could also research and quantify the effects of mines and ERW specifically on pastoralists and agro-pastoralists.

Role of International Organizations

International financial institutions and relief and development organizations have long been active in Sudan. An analysis of whether their assistance and funding is to the benefit or detriment of the Sudanese poor is much needed but beyond the scope of this paper. Nonetheless, there is considerable evidence from the last few decades that relief and development organizations as well as foreign donors have supported and facilitated the government of Sudan's political and economic agenda that has directly led to today's conflicts and humanitarian crisis. Johnson (2003) notes:

Since 1989 the government has manipulated the international relief effort to further both its economic and strategic goals in the [Southern Sudan] war, but it has also tried to harness the active collaboration of relief agencies through the ideology of development itself, which has been presented as both politically neutral and a strategy for peace.

Ahmed (2002) offers another perspective, arguing:

[T]he most damaging decisions to national economies and environments alike were introduced and supported by development experts who usually do not have sufficient time to answer the question of who benefits from such ventures nor do they bother to enlist the views and attitudes of the recipients. Furthermore, when such proposals are made, the channels of communication are always based on a top to bottom approach or development from above.

⁴⁶ The states most affected by mines and ERW are: Western Equatoria, Southern Kordofan, Upper Nile, Kassala, Red Sea, Northern Bahr al-Ghazal, Blue Nile, Bahr al-Jebel, Eastern Equatoria and Jongli, and also in the Nuba Mountains area. In addition, the country's borders with Chad, Democratic Republic of Congo (DRC), Eritrea, Ethiopia, Libya and Uganda are considered mine-affected (ICBL 2006).

⁴⁷ The UN Mine Action Office is part of the United Nations Mission in Sudan (UNMIS), whose mandate in UN Security Council Resolution 1590 (March 24, 2005) includes engaging in mine action activities.

The critiques by Johnson and Ahmed are not new or unique,⁴⁸ but they raise important questions about the politicisation and unintended consequences of international development in Sudan.

The international community has been eager to help Sudan resolve and recover from its numerous conflicts, but development and funding agencies should give greater consideration to the effects of their involvement on the Sudanese poor. For example, United Nations agencies are being asked to support the NCP's new Green Alert Programme for crop and livestock production (see "Green Alert Programme" below), but this programme pays insufficient attention to the needs and desires of poor farmers and livestock keepers; i.e. it does not appear to be pro-poor. Those who answer the NCP's call to provide technical assistance and funding for the Green Alert Programme could very well end up supporting development schemes that create further population displacements, livelihood insecurity, and conflict.

Given the anti-poor history of development in Sudan, international organizations and financial institutions should conduct political and strategic assessments as part of all development initiatives.⁴⁹ These reviews should look beyond the "pro-peace" and "pro-poor" rhetoric commonly used in development discourse to examine the likely outcomes of policies and projects for the Sudanese poor, including livestock keepers. International organizations and financial institutions should also review their past and current support of NCP policies and programmes to compare stated objectives with actual social, political, economic, and environmental outcomes. Greater monitoring and evaluation of the effects of development on the livelihoods of the Sudanese poor is urgently needed.

Regional Issues within Sudan

The livestock production areas of Sudan are ethnically, geographically, and biologically diverse. Livestock keepers throughout Sudan face common problems, however, including displacement owing to conflict and development. The following discussion of Darfur, Southern Sudan and Eastern Sudan raises salient issues and elaborates some of the aforementioned key issues in each region.

Darfur

Since 2003, the Darfur region⁵⁰ in western Sudan has experienced severe conflict that has killed an estimated 200,000 people (Hagan and Polloni 2006) and displaced 2 to 2.5 million people. The conflict straddles the border with Chad, but in July 2006 fighting took place in neighboring North Kordofan. The roots of this conflict are complex and tied to decades of misguided development policies, power shifts at the local and national levels, growing human and livestock populations, and cross-border dynamics with Sudan's neighbors including Chad and Libya⁵¹ (Flint and de Waal 2005; ICG 2003; ICG 2006b; Young et al 2005).

⁴⁸ With respect to Sudan, Middleton and O'Keefe (2006) note: "...not fully to understand, or to take into account, the political objectives of assistance, the politics of the causes of any given emergency and the political objectives of those who are afflicted by it, is simultaneously to reduce the effectiveness of humanitarian intervention, and to confirm the victimization of those for whom assistance is intended."

⁴⁹ The World Bank has not conducted a Poverty Reduction Strategy review for Sudan.

⁵⁰ Darfur here refers to the states of South Darfur, West Darfur, and North Darfur.

⁵¹ One reviewer of this paper stated that the Darfur conflict is fundamentally a 'farmer versus herder' conflict, but there is substantial information suggesting that the situation is complex and dynamic, with ultimate and

The Darfur Peace Agreement (DPA) signed in May 2006 offered some hope that conditions in Darfur might improve, but many rebel groups did not sign the DPA, immediately reducing its legitimacy. Since then, rebel groups have atomized and new alliances have formed, such as the National Redemption Front (EIU 2006a). The conflict escalated in August 2006 with a government-led offensive that is further destabilising the region. Government decisions on Darfur are made by the ruling National Congress Party, and dissent from these policies within Sudan is increasingly difficult and dangerous (ICG 2006b).

It is difficult to talk realistically about policy interventions to help poor livestock owners in Darfur given the security situation. Some sources interviewed for this project asserted that as long as conflict persists, new policy initiatives or projects in Darfur are likely to reward some groups at the expense of others, for example by giving material assistance to groups allied to the government that have stolen land and looted livestock. International organizations and donors should be wary of supporting or enabling governmental livestock policy initiatives in Darfur until peace has been firmly established. There may be greater opportunity to help livestock keepers through local non-governmental organizations or international relief organizations; however, there is a risk that such aid could still be politicised and benefit some groups at the expense of others (Duffield 2002).

When peace comes to Darfur, the issue of land tenure will need to be near the top of the priority list for action. Many sources interviewed for this project stated that land tenure is the most important issue in Darfur after peace. The DPA called for creation of a Land Commission, but conflict renders this commission moribund. Future peace agreements should build upon the DPA and provide for creation of a Land Commission that operates transparently and allows for the evolution of indigenous land management systems. In addition, international organizations and donors should ensure that policies are in place to include poor livestock keepers in the design and implementation of land tenure agreements (cf. Mohamed 2006). Policies for land use and ownership should be locally generated and flexible to account for seasonal and annual variations in fodder production.

The conflict in Darfur is notable for the tactical and strategic use of livestock looting by numerous warring factions (Young et al 2005). Many displaced households lost the vast majority of their livestock owing to looting (CESVI 2005), while others lost livestock owing to disease, malnutrition, and starvation after they fled fighting (CHF 2005). When peace is established and the displaced can be resettled, policy initiatives should be based on the expressed needs and desires of those who lost livestock. Restocking programmes focused on donkeys, chickens, and small ruminants could enable the restoration of livelihoods for resettled populations (Hamid et al 2005; CHF 2005), although avian flu concerns may preclude future poultry restocking efforts. In addition, Young et al (2005) have proposed a *Livestock Reconciliation and Compensation Commission* for Darfur to encourage the voluntary return of looted livestock, provide certificates of ownership for livestock, and direct tax money from the sale of livestock to households that lost animals owing to looting. This proposal merits further attention.

Peace will create opportunities for other pro-poor livestock policy interventions. There will be a clear need for rapid and accurate censuses of people, livestock, and natural resources upon which to base development decisions. The marketing system will need considerable reconstruction. Pro-poor policies could provide for expanded and subsidized veterinary care, but

proximate causes, including political and economic exclusion of Darfurian groups from the Comprehensive Peace Agreement (Young 2005).

sources interviewed for this project also stressed the importance of creating water points for livestock, particularly along migratory and trade routes (cf. Young et al 2005).

Southern Sudan

The January 2005 Comprehensive Peace Agreement (CPA) ended the war between the SPLM/A and the Government of Sudan (see also “The CPA and the New Sudan” above). Among its many other provisions, the CPA calls for a referendum in 2011 on whether the South will remain part of a united Sudan or become independent (CPA 2005). The late President of GOSS John Garang advocated a unified Sudan, but his successor Salva Kiir is viewed as being supportive of independence for the South, particularly given his strained relations with NCP and recent problems implementing the CPA (ICG 2006a; ICG 2005).

The implementation of the CPA has been fraught with difficulty and it remains a distinct possibility that it will fail.⁵² The NCP that controls GONU has systematically delayed or undermined implementation of the CPA and fostered divisions within the South, in large part to maintain control over key oil producing areas and oil revenue (ICG 2006a). The success of the CPA has also been undermined by the SPLM/A, which faces enormous obstacles in creating new government structures in a region scarred by conflict and historically underdeveloped. The SPLM has been wracked with internal divisions since the July 2005 death of President John Garang, but it also has weak capacity to provide security, govern, and control and plan expenditure (ICG 2006a; EIU 2006). According to the Economist Intelligence Unit (2006b), “there remains a risk that over time the persistence of delays and disputes will steadily undermine the credibility of the CPA and increase the scope for the parties (in particular the [NCP]) to renege on it.”

For poor livestock owners, the CPA offers great opportunities but its failure could continue their marginalisation and deepen their poverty. There is still significant insecurity throughout the South, which both limits development efforts and hinders the return of refugees and IDPs to some areas. The lack of security is a symptom of the larger institutional problems within GOSS, which extend to the nascent Ministry of Animal Resources and Fisheries. Other significant issues for poor livestock owners in Southern Sudan are disease control efforts, land tenure and border clarification, improvement of the marketing system, and instability in oil producing areas.⁵³

Security. Southern Sudan faces many security-related challenges including transforming the SPLA into a formal army, demilitarizing militias, eliminating the Lord’s Resistance Army, demining, and deterring persistent cattle raiding (EIU 2006a; ICG 2006a). Security is the linchpin to larger efforts to help poor livestock keepers in Southern Sudan. Without security, efforts to improve the marketing system, conduct human and livestock censuses, and expand disease control efforts are likely to fail in whole or in part. Recommendations on how to increase security in Southern Sudan are beyond the scope of this paper, but the importance of increased security for pro-poor livestock policy interventions cannot be overstated.

Institutional Issues. GOSS faces many challenges in establishing its authority and administration over Southern Sudan. In accordance with the CPA, GOSS

⁵² The design of the CPA has also been criticized for giving too much power to NCP and SPLM and excluding many of Sudan’s other opposition groups, thus leading to conflict and the need for separate peace processes for Darfur and Eastern Sudan. See Middleton and O’Keefe (2006) and Young (2005).

⁵³ Abate (2006) provides an overview of the different livelihood systems within Southern Sudan and discusses additional issues not discussed here, such as fodder production.

has executive, legislative, and judicial power over the ten states of the south. The creation of governmental institutions has proven difficult, however, because the SPLM/A did not have a very developed political system or a large cadre of trained personnel prior to the peace agreement upon which to build the new government. Additionally, GOSS now has authority over ten state governments, some of which have minimal administrative infrastructure, whereas others—such as the Bahr al-Jebel and Western Equatorial governments—are comparatively affluent and organized. GOSS struggles to build institutions and extend its power while also facing limitations imposed by a transportation and communications infrastructure that is slow and unreliable (EIU 2006a).

Among the new ministries within GOSS is the Ministry of Animal Resources and Fisheries (MARF). As of June 2006, this ministry had only five staff including the minister and they were just moving into their own building. For the foreseeable future the ministry will be heavily dependant upon technical assistance from international organizations, such as FAO. Given the very real possibility that Southern Sudan will vote to form its own nation in 2011, there is an urgent need to increase the size and capabilities of MARF so that it can undertake planning and implementation of pro-poor livestock policies and projects.

After security, one of GOSS's main focuses is on increasing infrastructure in the south. With international assistance, numerous road projects are underway and several rail links have been proposed that would better link Southern Sudan with Northern Sudan and with the Greater Horn of Africa and the Great Lakes Area (Garang 2005). These transportation links could open new opportunities for the marketing of Southern Sudan's livestock to Uganda, Kenya, and the Democratic Republic of the Congo (DRC), as well as international markets through ports in Kenya and DRC. Southern Sudan will also likely continue to send live animals to the commodity chain in Northern Sudan, from where they could go to expanding markets in Egypt and the Arabian Peninsula.

One issue of potentially great significance for poor livestock owners in Southern Sudan is the proposed construction of a massive 5,000 megawatt hydroelectric dam south of Juba. This project is important for two reasons. First, the project could use up to half of GOSS's budget for the next fifteen years (Juba Post 2006), drawing money away from other pressing developmental and institutional needs. Second, the dam could create a large impoundment area that floods vast areas of land, leading to significant social displacement and economic disruption.⁵⁴ If the project moves forward, international organizations and donors should work with GOSS to ensure that policies are in place to provide for the comprehensive study of the project's social and environmental impacts, as well as fair compensation and adequate services for displaced populations.

Land Tenure. Land tenure is a significant and controversial issue in Southern Sudan. The CPA provided for a Southern Sudan Land Commission (SSLC) that will work in conjunction with the National Land Commission in the north. The President of GOSS has appointed five commissioners to the SSLC, but as of October 2006 it had not begun its work owing to NCP's failure to set up the National Land Commission. Additionally, the CPA created the Abyei Boundaries Commission (ABC) to define the Abyei area of Southern Kordofan, which straddles north and south Sudan and includes important oil production areas (see discussion in "Land Commissions" above).

⁵⁴ The smaller Merowe dam project in northern Sudan displaced an estimated 50,000 people.

The SSLC and ABC will complement the work of GOSS and the southern states to determine issues of land use and ownership. This work is urgent as an estimated 2 million refugees and IDPs (and their livestock) begin to return to Southern Sudan. According to Polloni (2005; cf. Kenyi 2006):

In conformity with the general principle that 'land in the new Sudan belongs to the communities', the SPLM [GOSS] judiciary system relies primarily on customary legislation. This is characterised by absence of formal land registration, predominance of land use (as opposed to ownership) rights, vesting of power to allocate land in tribal chiefs, loss of land rights in the event of protracted non-use, virtual absence of land sales and possible coexistence of overlapping rights on the same territory.

The potential problems arising from this focus on customary law are numerous, including discrimination against women who do not have customary rights to land and uneven documentation of customary rules across tribes and territories (Polloni 2005).

The international donors and organizations providing policy and institutional support in Southern Sudan need to ensure that GOSS considers the needs and desires of poor livestock owners in the design and implementation of policies that affect them. As with Darfur, there is a need in Southern Sudan for a flexible land tenure system to account for livestock keepers' changing land needs related to flooding and annual variations in fodder production. Polloni (2005) suggests converting customary land rights into statutory land rights to protect local populations from returnees and land speculators, but this could also serve to validate land seizures including oil-related displacements. GOSS and the ten states should also consider adopting policies to require impact assessments and feasibility studies for all resettlement or development projects over a certain size to ensure that land conditions (e.g. water availability and soil conditions) are appropriate for the intended use.

Another significant issue that will affect land tenure is the resurrection of plans to construct the Jonglei canal. The Jonglei canal would divert water away from the massive swamps in southern Sudan to increase the water availability for agricultural development in Sudan and Egypt⁵⁵ (Johnson 2003). When construction on the canal began in 1974, there was considerable local opposition based on the fact that the canal would cut through livestock migratory routes and negatively harm pastoral livelihoods (Majok and Schwabe 1996). In December 1983 the Southern People's Liberation Army (SPLA) attacked the canal and construction equipment, effectively ending this project (Niblock 1987). The project was revived in 2006, however, through the Green Alert Programme and negotiations between GOSS and the government of Egypt (Willow 2006). If construction of the canal resumes, it could have profound environmental and social effects, including disruption of migratory routes for Nuer, Dinka, and Shilluk livestock keepers⁵⁶ (Willow 2006).

As the technical capacities of the GOSS are limited, it almost certainly would welcome LPI support and involvement in its various deliberations that affect land use and tenure.

Disease Control. Peace in Southern Sudan creates opportunities for improving disease control policies and practices. During the war, the UNICEF-sponsored Operation Lifeline Sudan (OLS) included provision of veterinary services, training of CAHWs, and extension of disease control efforts in the South

⁵⁵ The canal was planned to be 360 km long and 54 m wide (Lako 1985).

⁵⁶ Several individuals and the Southern Sudan Defense Force (SSDF) have recently voiced concerns about the environmental and social effects of the Jonglei Canal. See <http://www.sudantribune.com/spip.php?article17510>, <http://www.sudantribune.com/spip.php?article18878>, <http://www.sudantribune.com/spip.php?article18051>, <http://www.sudantribune.com/spip.php?article17304>, sites visited February 6, 2007.

(Catley and Leyland 2001; Johnson 2003; Jones et al 1998). As peace has taken hold and displaced populations have started to return home (often with their livestock), there are growing concerns about new outbreaks of disease. These concerns have been heightened by the September 2006 outbreak of avian flu in Juba (OIE 2006b). International organizations such as UNICEF, VSF, and FAO are engaged in distributing vaccines, training CAHWs, and monitoring disease outbreaks, but there needs to be greater attention paid to building institutional capacity within MARF and promoting legislation within GOSS to provide poor livestock owners with low-cost, veterinary care of reasonable quality, access to drugs and vaccines, and disease control and surveillance.

Marketing. Peace not only exposes long-standing constraints for livestock marketing in Southern Sudan but also presents new opportunities. During the war, fighting disrupted traditional commodity chains for the sale of livestock through the North, leading to the increased sale of Sudanese cattle in Uganda (HRW 2003). Infrastructure problems that predated the most recent civil war persist, increasing the chances to spread or contract diseases and forcing traders to walk animals to markets (King and Mukasa-Mugerwa 2002). On the other hand, peace has brought international aid and development programmes to Southern Sudan that aim to improve the livestock marketing system. Current projects include extension of veterinary services, improvement of markets and roads, and provision of services to returning displaced populations and their livestock (cf. UNHCR 2006). Bure (2005) suggests creating cattle and sheep raising centers to supplement peasant production, but the effects of large-scale livestock production operations for poor livestock owners should be studied before a shift to ranching takes place. Currently between 50 and 60 percent of Southern Sudan's population are believed to rely upon livestock for their livelihood (King and Mukasa-Mugerwa 2002; cf. JAM 2005).

The limitations of the banking system in Southern Sudan have significance for the improvement of livestock marketing. In July 2006 the Bank of Southern Sudan—the new central bank for the south—was set up in Juba, the capital of Southern Sudan. The Bank is based on a conventional system of administration (the Bank of Sudan in the north is based on Islamic law), but it has very weak capacity and is understaffed (EIU 2006). The financial system in Southern Sudan is also hampered by the lack of a unified currency. In early 2007 the Central Bank of Sudan will introduce a new national currency (the pound, replacing the dinar), but in Southern Sudan the Ugandan shilling and U.S. dollar are still commonly used for commercial transactions. The extension of financial services could provide livestock owners with new opportunities for storing wealth and give traders access to credit for the purchase of livestock from primary producers (King and Mukasa-Mugerwa 2002).

GOSS needs to improve its institutional capacity for managing and promoting the livestock marketing system. Although GOSS is currently reliant upon international assistance and oil for its revenue, it should move to increase its revenue from livestock production by delegating one agency to oversee the marketing system and coordinate the efforts of governments, producers, and traders to improve production and exports (cf. Aklilu 2002). This lead agency could be MARF or the Ministry of Foreign Trade, but regardless, it should initiate legislation and undertake projects to modernise the marketing system, for example by improving water supplies along trekking routes, consolidating the tax structure, and enhancing the communication infrastructure to extend market information to primary producers and disease information among veterinary and border control workers (cf. King and Mugerwa 2002). Such activities could also give GOSS greater visibility, credibility, and legitimacy among the diverse populations of Southern Sudan.

Oil. Control over oil revenues and production areas remain at the center of problems in Southern Sudan. During the 1980s and 1990s, the Government of Sudan and multinational oil companies forcibly displaced pastoralists and farmers from areas of oil exploration, extraction, or transport (i.e. pipelines) (HRW 2003; ARSC 2001). During this same period, the activities of international human rights groups helped force the withdrawal of Western oil companies from Sudan, but this simply created a vacuum that was filled by oil companies from less human rights conscious countries in Asia, most notably China, without changing the unpleasant realities on the ground (Paley 2006; cf. EIU 2006). The CPA provides for GONU to share revenue with GOSS, but the lack of transparency in both the distribution and management of oil revenues has led to concerns about corruption (EIU 2006a).

Policy interventions to safeguard the rights of displaced populations could include new legislation within GOSS to provide for citizen involvement in development planning for oil exploration and extraction. In addition, international organizations could engage with multi-national oil companies to “design measures which ensure that human rights susceptibility does not become a competitive weakness for a corporation, while implementing measures that assist in ensuring the presence of the company is not damaging to efforts of peace and development” (Paley 2006).

Eastern Sudan

Conflict in Eastern Sudan⁵⁷ is closely tied to the conflicts in Darfur and Southern Sudan, although it has received much less international attention. The Beja ethnic group, who comprise about one-half of Eastern Sudan’s population, formed the Beja Congress in the mid-1960s to express grievances about historic political and economic marginalisation. The Nimeiri regime did little to help Eastern Sudan, and the droughts and famines of the 1980s devastated rural farmers and pastoralists, with the Beja reportedly losing up to 80 percent of their animals (ICG 2006). Also during the 1980s, refugees (and their livestock) were pouring into Eastern Sudan from Eritrea, leading to local conflicts (Bascom 1990).

Beja frustration reached new heights in the 1990s when the Sudanese government of President Al-Bashir cracked down on political opposition, confiscated large tracts of fertile farmland without compensation, and aggressively promoted its version of Islam in Beja areas (ICG 2003; ICG 2006). The Beja Congress joined the opposition National Democratic Alliance⁵⁸ (NDA) in 1995 and waged low-intensity warfare in Eastern Sudan with help from the SPLA and the Eritrean government. When the Beja Congress was excluded from the IGAD-sponsored peace talks between the NCP and SPLM/A, it asserted itself by forming an alliance with Darfur rebel groups (in 2004) and creating the Eastern Front (in 2005) along with the smaller Rashaida Free Lions insurgency (ICG 2006).

Eastern Sudan is of great strategic importance because it contains Port Sudan as well the roads, rail lines, and oil pipelines leading to the port. Port Sudan is vital to Sudan’s economy as the site where oil from central and southern Sudan is loaded on to ships and then delivered to China, India, Japan, and other mainly-Asian countries. The port is also the main point of departure for live animals from Sudan.⁵⁹ In 2005, live animal exports constituted 13 percent

⁵⁷ Eastern Sudan comprises the three states of Red Sea, Kassala, and Gedaref.

⁵⁸ NDA is an alliance of opposition political groups including the SPLM, Umma Party, Democratic Union Party, Beja Congress, and others (see ICG 2006).

⁵⁹ By value, 72 percent of Sudan’s live animal exports in 2003 were through Port Sudan (ARSC 2004), the remainder being flown out of Khartoum or transported on the ground into neighboring countries.

of Sudan's non-oil export revenues, making the security and stability of Port Sudan of great significance for Sudan's national economy as well as livestock owners and traders (Central Bank of Sudan 2005; cf. Aklilu 2002).

Pastoral livelihoods in Eastern Sudan have been seriously undermined by drought, large crop production schemes, and desertification (ICG 2006). The erosion of pastoral life has contributed to the deepening poverty of the eastern population, which in turn has led to conflict. Nonetheless, livestock (mainly small ruminants, camels, and poultry) are still maintained by traditional pastoralists, villagers, and tenant farmers and laborers in areas of mechanised agriculture, such as the Butana (Akhtar 1993; cf. FAO 2005).

Peace talks to end conflict in Eastern Sudan progressed throughout 2006, leading to an agreement in October 2006. The Eastern Sudan Peace Agreement (ESPA) between the Eastern Front and GONU is based on power and wealth sharing, similar to the CPA and DPA. The agreement establishes an Eastern Sudan States' Coordinating Council to increase cooperation between the three eastern states and calls for a conference to be held during 2007 to "revisit the administrative structure of the country" (Art. 5). Whereas the CPA gave the SPLM a Vice Presidency and the DPA gave Darfur a "Special Assistant" to President Al-Bashir, the ESPA creates an "Assistant to the President" for the Eastern Front (Art. 8). The agreement also provides for Eastern Front representation in the Council of Ministers (Art. 8) and National Assembly (Art. 9). Where the CPA and DPA created new Land Commissions, the ESPA provides Eastern Front representation on the National Land Commission authorized in the CPA (Art. 12). The ESPA also creates a special fund for reconstruction and development from the national budget (Art. 19).

With respect to the contentious issue of land use, the ESPA makes several general promises. Article 21 states that laws regulating land use and ownership will incorporate "customary laws and practices, local heritage and international trends and practices;" however, this potentially sets up a clash between customary communal land use and the international practice of private ownership. Article 21 further states:

The [GONU] shall ensure that all citizens affected by the development of land and/or national resources are consulted. Persons whose property or livelihood is adversely affected by development of land and/or national resources have a right to adequate compensation... All persons arbitrarily or unlawfully deprived of their rights to land shall have those rights restored to them.

These statements lack the temporal specificity to determine whether compensation and rights will be restored to Eastern Sudan livestock keepers who have already lost their lands and livelihoods, or whether the provisions apply only to future displacement and land seizure. There are multiple opportunities for policy intervention to clarify land use rights in Eastern Sudan, for example through state-level legislation to create commissions to review past land seizures and recommend appropriate compensation measures. In addition, the needs of current pastoralists and agro-pastoralists could be addressed through clarification of migratory routes and pastureland and rangeland access, for example in the Butana and Gash areas.

The ESPA offers hope for peace and development, but its success is far from assured. There may be difficulties in implementation because "not all eastern rebels are represented in the negotiations, and there is considerable resentment against the government in the east (EIU 2006a). Cattle- and sheep-raiding along the border with Ethiopia is also a persistent problem (Tito 2006; Al-Sahafa 2006), with the potential to escalate and disrupt the peace process. One source interviewed for this project expressed skepticism about the Eastern Front's ability to address land use and other pressing issues,

stating that during peace negotiations the Eastern Front was focused on achieving power within the national government without consideration for bottom-up political and economic development.

APPENDIX A. LIVESTOCK IN SUDAN

Cattle. Cattle (*bos taurus*) have great social and economic importance in Sudan. The ARSC reported the total cattle population in 2003 in Sudan to be 39.7 million (ARSC 2004), nearly double the estimated population of 20 million in 1987 (Majok and Schwabe 1996). There are twenty breeds of cattle in Sudan (Sudan 2006), but the two main groups of cattle are Zebu (including Kenana, Butana, Baggara, Murle, and Nuba Mountain) and Nilotic (Majok and Schwabe 1996; Rege et al 2001; Ageeb 1991). In addition, Holstein-Friesian cattle from Europe have been imported to Sudan for milk production and breeding⁶⁰ (Ahmed and El Amin 1997; Ageeb and Hayes 2000).

Cattle and cattle products serve a variety of important social and economic functions. For poor livestock keepers, cattle effectively function as a bank, whereby livestock keepers sell cattle when they need money and buy cattle as an investment when they have extra money. Depending on local traditions and customs, cattle may also be used for ritual sacrifice or serve as currency; for example cattle may be used to pay bride price or serve as compensation for the settlement of disputes. Cattle are occasionally used as draught animals on farms and for transportation. Cattle produce milk, meat, and hides that may be consumed locally or sold commercially for domestic use or export.⁶¹ In Southern Sudan, cattle provide dung for fuel, dung ash (used to ward off biting insects for animals and people), and urine (for bathing, washing milking utensils, dressing wounds); urine and dung are also used for fertilizer (Majok and Schwabe 1996).

Sheep. Sheep (*ovis aries*) are Sudan's number one livestock export. There are four main types of Sudanese sheep (Desert, Nilotic, Arid Upland, and Equatorial Upland) and seventeen breeds (El-Hag 2001; Sudan 2006). Sudan Desert sheep comprise more than 65 percent of the total sheep in Sudan and nearly 100 percent of Sudan's sheep exports⁶² (El-Hag et al 2001; Mufarrih 1991). The ARSC reports that in 2003 there were 48.4 million sheep in Sudan (ARSC 2004), up from 18 million in 1987 (Majok and Schwabe 1996).

Nomads, transhumants, and sedentary farmers raise sheep to produce meat and milk, and to a lesser extent skins (Abdelgadir et al 1998). Sudan exports live sheep and sheep meat mainly to Saudi Arabia, with small amounts also going to other Arab countries such as Libya, United Arab Emirates, and Jordan (ARSC 2004). Although statistics for milk production are unreliable and vary widely, in 1996 the Ministry of Animal Resources estimated total milk production from sheep at 650,000 tons, or roughly 9 percent of Sudan's total milk production (Abdelgadir et al 1998).

Goats. Goats (*capra hircus*) are an important source of milk and meat in Sudan. The ARSC reports that in 2003 the goat population of Sudan was 42 million (ARSC 2004), up from 13 million in 1987 (Majok and Schwabe 1996). There are 11 breeds of goat in Sudan (Sudan 2006), the most common being Sudan Desert and Nubian goats. The Nubian goat is the only specialised milk breed (Kamal et al 2005). Three exotic breeds of goats (Saanen, Toggenburge,

⁶⁰ Holstein-Friesian cattle are generally kept by wealthier individuals and companies that can provide for the specialized needs of these cattle; therefore poor pastoralists do not generally own this type of cattle.

⁶¹ Cattle generally need to consume 1-4% of their weight in dry matter every day. Normally an allowance of 3% per day equates to roughly 15 kg of dry matter (50 kg of green grasses) for an adult. A milk cow requires five liters of water to produce one liter of milk.

⁶² There are many subtypes of Sudan Desert sheep, including Hamari, Kabashi, Shenbali, Shugor, Dubasi, Watish, and Bourug (El-Hag et al 2001).

and Anglo-Nubian) were imported to Sudan in 1976 to improve the milk production of local breeds (Kamal et al 2005).

Goats are important socially and economically. Goats are an important source of meat and milk, especially for poor families. Goats may also be used as a form of currency, for example as a bride price or payment of a debt or fine. Goats are most commonly kept by sedentary farmers and families in urban and peri-urban areas, although some nomads and transhumants also keep them (Fadlalla and Ahmed 1997). Goats consume about 10 kg of lush greens per day (2.5 kg dry matter). In urban and peri-urban areas, goats may primarily feed on household food waste and street refuse (Fadlalla and Ahmed 1997). Goat milk and meat is mainly consumed domestically, although goat skins are a growing export: nearly 3 million goat skins were reportedly exported in 2003 (ARSC 2004).

Camels. There are five breeds of camels (*camelus dromedarius*) in Sudan (Sudan 2006). The ARSC reports that in 2003 there were 3.5 million camels in Sudan (ARSC 2004), up from 2.7 million camels in 1987 (Majok and Schwabe 1996). Camels are generally found in the desert and semi-desert regions between latitudes 12 and 16° N; most of the camels are located in the Darfur, Kordofan, and Eastern Sudan. Camel milk is consumed locally, and live camels and camel meat are exported from Sudan, mainly to Saudi Arabia and Egypt (ARSC 2004). Camels are also used to transport people and packs, and to a lesser degree for herding, draught, and oil milling (cf. Wilson 1978).

Equines. Donkeys (*equus asinus*) and horses (*equinus caballus*) are important beasts of burden in Sudan. There are no reliable figures on the number of donkeys and horses in Sudan, but a government estimate places the current combined total of equines at around 4 million (MOST 2006), up from an estimated 790,000 donkeys and 93,000 horses in 1977 (Wilson 1978a). There are five breeds of donkeys and five breeds of horses in Sudan (Sudan 2006).

Donkeys are integral to the livelihoods of rural Sudan, but they also play an important role in the livelihoods of the urban and peri-urban poor. In rural areas, donkeys are used for short-range transportation, herding, and to carry water, food, and other goods. Donkeys are also sometimes used to pull plows (Osman et al 2005). In rural areas, people who do not own donkeys are usually the poorest of the poor, namely the elderly, disabled, displaced, or otherwise dependent (Fernando and Starkey 1997; Tabarak 2005). In urban areas, donkeys and donkey carts are used by vendors selling water or milk and for transporting people or goods, thus providing an important source of income for farmers and pastoralists who migrated to cities owing to drought or war (cf. Fernando and Starkey 1997).

Horses are mainly used for herding cattle and transporting goods and people. Most horses are found in rural areas, especially South Darfur and South Kordofan, but they are also found in urban areas where they are used to pull carts. Horses are bigger and stronger than donkeys, but they are more expensive (ARSC 2004) and require more food, making them unaffordable for many poor people.

Poultry. Poultry is an important branch of livestock for Sudan's sedentary poor populations. Production systems in households are based on scavenging indigenous domestic chickens (*gallus gallus*); some households also raise pigeons (*columba livia*), guinea fowls (*numida meleagris*), ducks (*anas platyrhynchos*), and turkeys (*meleagris gallopavo*). In Sudan there are three breeds of chicken and one breed each of pigeon, guinea fowl, turkey, and duck (Sudan 2006). In non-industrial settings, poultry generally feed on household food waste, but their diets may be supplemented with cereals (Khalafalla et al 2002).

There are no reliable numbers of poultry in Sudan; recent estimates for chickens range from 18.6 million to 45.3 million (Ibrahim 1999; Khalafalla et al 2002). Regardless of the total number, poor farmers and livestock keepers are responsible for an estimated 80 percent of total poultry production (Ibrahim 1999). Near Khartoum there are many small poultry farms with capacities ranging from 1,000 to 50,000 birds. In addition there are 6 intensive system farms each with a capacity of around 250,000 birds (OIE 2006). Sudan's chicken production industry is heavily reliant upon the import of day old chicks and fertilized eggs⁶³ (ARSC 2004). The 2006 outbreaks of avian flu may have significant short-term effects upon poultry production in Sudan (see "Disease Control" above).

⁶³ In 2003, Sudan imported approximately 2.5 million day old chicks and 7.4 million fertilized eggs (ARSC 2004).

APPENDIX B. PRODUCTION SYSTEMS

Livestock production systems in Sudan have changed over time owing to internal and external influences. Large development schemes, desertification, drought, war, population growth, and other factors have affected pastoral systems of livelihood. The different production systems present in Sudan are summarised below. Pastoral nomads, transhumants, and sedentary farmers possess up to 90 percent of the animal wealth in Sudan; therefore they are responsible for the major source of meat for domestic and export markets (Ahmed 2002).

Nomadic. Nomads move permanently between seasonal pastures with their animals (cattle, camels, sheep, and some goats). They engage in extensive pastoralism in which livestock are herded upon the open range (Majok and Schwabe 1996). Nomads spend the rainy season in the northern, semi-desert zone and the dry season further south into the savannah. There are widely ranging estimates of the number of nomads in Sudan (cf. Ibrahim 1999; Ahmed 2002; Manger 2001), but they tend to own the largest herds (Ibrahim 1999).

Transhumant. In transhumance, households depend mainly on livestock herding but seasonally return for a period to grazing and farming or harvesting around a home base (Majok and Schwabe 1996; Ibrahim 1999). In western Sudan, households and livestock (cattle, sheep, camels) migrate north during the rainy season and return south to the savannah during the dry season. In Southern Sudan, Dinka transhumants move with livestock (cattle, sheep, goats) to grazing areas (*toich*) during the dry season and back to their permanent homesteads during the rainy season (Majok and Schwabe 1996). Transhumants may also possess and travel with chickens (Wilson 1979; cf. Majok and Schwabe 1996).

Sedentary. In the sedentary production system, households that are settled in villages and depend predominantly on rainfed crop farming also possess small herds of livestock, (goats, cattle), which are used as sources of food and storage for wealth (Ibrahim 1999). Poultry provide meat and eggs for sedentary households (Khalafallah et al 2002).

Migratory agropastoral. A migratory agropastoral system is found in southern Sudan, where livestock (cattle, sheep, goats) are raised in traditional rainfed agricultural systems in settled villages. Livestock are moved away from the Nile River in the period of flooding and back when the floods recede (Fadlalla and Ahmed 1997).

Sedentary irrigated-crop livestock system. In irrigated areas of central Sudan, permanently settled farmers raise crops and maintain livestock herds (sheep, goats, some cattle). Productivity is low and animals depend heavily on crop residues, industrial by-products and the grazing of limited areas of fallow and the sides of canals. The sale of livestock is a supplementary source of income used to hire labor for agricultural work before the harvest. (Fadlalla and Ahmed 1997; Ibrahim 1999).

Urban production. Although the vast majority of Sudan's livestock are in rural areas, some are also found in urban and peri-urban areas (Salih 1985). Equines (especially donkeys) are used for transportation of goods and people, especially milk delivery. Cattle and camels are found mainly in peri-urban households, while sheep, goats, and chickens are common in urban and peri-urban areas. In addition, industrial production centers for dairy, chicken, and eggs are found near major population centers, particularly Khartoum.

Commercial ranches. Large commercial ranches were first proposed by international development consultants in the 1970s, but owing to problems with international finance and domestic political opposition, these ranches never became a reality (Adams and Howell 1979; Ibrahim 1999). During the 1990s, the Sudanese government once again embraced commercial ranches as a way to modernise the livestock sector (Manger 2001), and the government's 2006 Green Alert Programme calls for private sector establishment of "range farms and ranches" (MAF 2006).

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