Briefing Paper

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The Economics of Pastoral Livestock Production in Sudan

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This is the first in a series of Pastoralism Briefing Papers, which form part of the UNEP Sudan Integrated Environment Project, funded by UKaid from the UK Department for international Development (DFID).

The paper highlights the significant and often invisible contribution of pastoralist livestock production to the national economy. It is based on a more detailed Working Paper that can be found on the Tufts website, which will be used to inform further research in 2012.

See:
http://sites.tufts.edu/feinstein/program/sudan-environment-and-livelihoods

The contribution of livestock and pastoralism to the national economy

Livestock is the largest subsector of the Sudanese domestic economy and is a growing contributor to exports. The great bulk of all livestock production – possibly 90% of the total, though no one really knows the actual figure – comes from small holders and migratory producers. To a remarkable extent, the Sudanese economy is based on a combination of mobile and sedentary pastoral and agro-pastoral production by farming and herding households in almost every region and state. It is essential that Sudanese policy makers recognize the centrality of pastoralism to their economy and take practical steps to support the livestock sector.

The most commonly quoted measure of the importance of an economic sector or industry is the size of its contribution to national gross domestic product (GDP). From this perspective, Sudan's official national accounts reveal the very significant contribution made by livestock to the country's domestic economy. Sudan's agricultural sector GDP includes crop, livestock, fisheries and forest production. Using official statistics compiled before the independence of South

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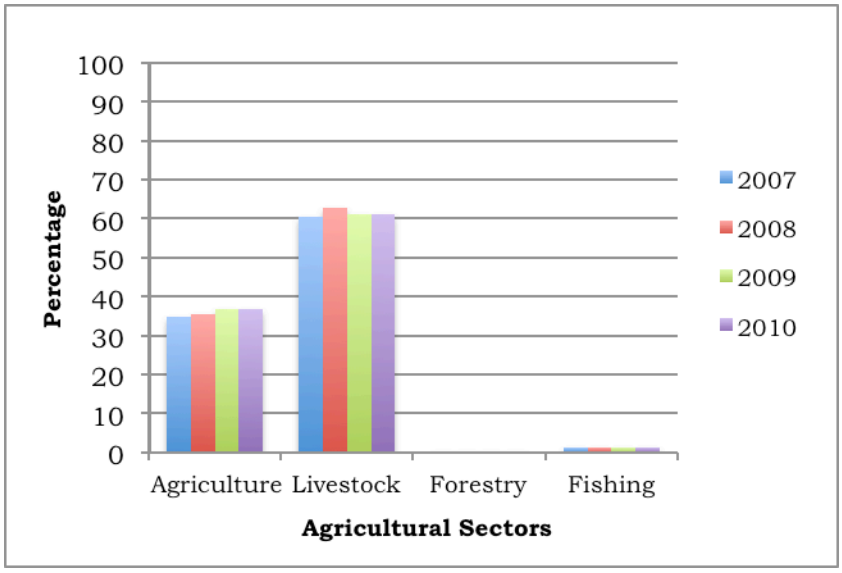
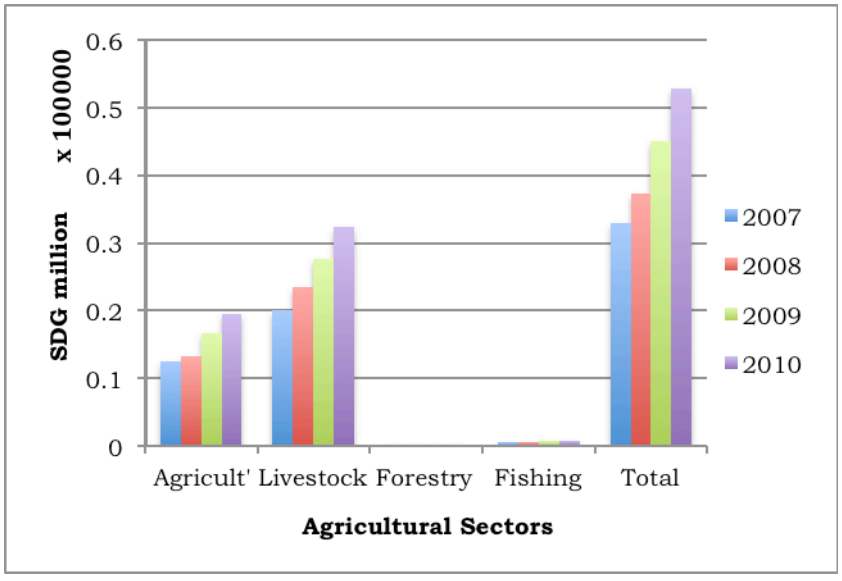
Sudan, livestock has in recent years consistently provided more than 60% of the estimated value added to the agricultural sector, and is a substantially more important contributor to agricultural GDP than crop farming (Figure 1).

Figure 1.

Contribution of crops and livestock to agricultural sector (%)



Contribution of crops and livestock to agricultural sector (SDG Million)



Source: Central Bureau of Statistics (unpublished data)

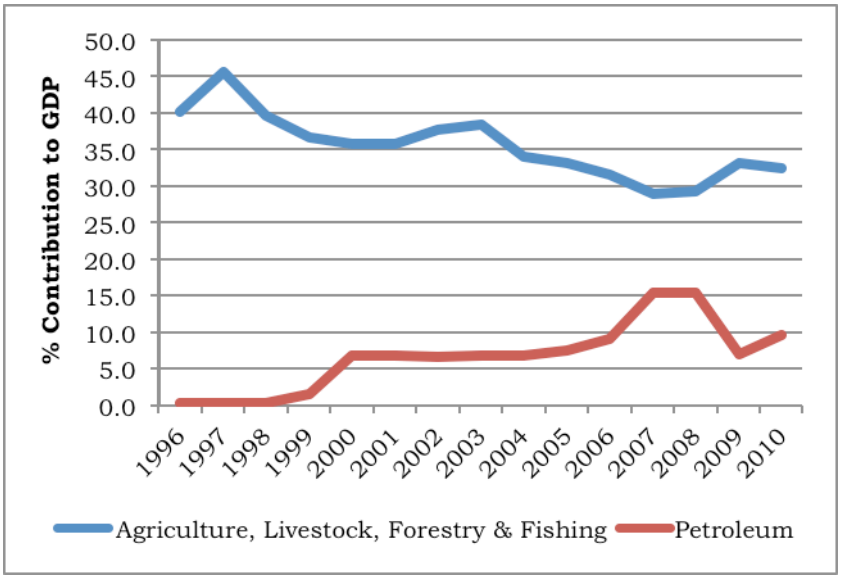
"Livestock is, by value, the largest subsector of Sudan's domestic economy, larger even than petroleum"

"…there has been no attempt to actually count the number of livestock in Sudan for 37 years."

With the advent of oil production and exports in the late 1990s, the relative contribution of the agricultural sector to national GDP has declined, but at no time in the last decade has the contribution of petroleum to GDP come close to equaling the contribution of agriculture, of which livestock provides the biggest part. Livestock is, by

value, the largest subsector of Sudan's domestic economy, larger even than petroleum (Figure 2).

Figure 2.
Agriculture sector and petroleum contribution to GDP, 1996-2010



Source: Central Bureau of Statistics (unpublished data)

While not as large as its domestic economic contribution, livestock's share of exports is considerable, and it is growing. Official reports from the 1950s through the early 1970s suggest that livestock and livestock products constituted about 6-7% of official agricultural exports in most years. Since 1997, however, officially recorded livestock exports have averaged 27% of agricultural exports, rising to up to 47% in 2009. Over this period live sheep have been Sudan's most important livestock export commodity, followed in importance by hides and skins, camels and goats. The great bulk of live sheep and goats that are officially exported go to Saudi Arabia following quarantine, with additional informal or unrecorded cross-border live animal trade conducted with Chad, Libya and Egypt.

It would appear that the era in which crops dominated the agricultural export scene is long past. Taking a balanced view of their combined domestic and export significance, official figures suggest that the livestock and crop subsectors are relatively evenly balanced in their contribution to the national economy.

It is important, however, to recognize the limited reliability and coverage of official Sudanese economic data, including information on livestock production. As noted previously, the often-quoted rule of thumb is that up to 90% of the livestock in Sudan are raised by pastoralists, but there is very little empirical data to substantiate this

assertion. Likewise, there has been no attempt to actually count the number of livestock in Sudan for 37 years. Official estimates of the size of national livestock populations are the result of desk-based calculations, not field observations, and may turn out to be grossly inaccurate when they are finally checked. There is, moreover, little information on the informal cross-border trade in live animals, and virtually no information on the national economic value of animal power – as traction for plowing or other agricultural operations, for human transport, or for the haulage of harvested crops, water for domestic consumption, building materials or trade goods. Remedying these data deficiencies could easily increase – by a considerable margin – the estimated economic benefits from livestock and pastoralists.

Economic effects on livestock producers of government taxation & export policies

"Multiple, high taxes were the marketing problem most frequently cited by sheep traders interviewed in primary and secondary markets in 2005."

Multiple, high taxes were the marketing problem most frequently cited by sheep traders interviewed in primary and secondary markets in 2005 (Dirani et al. 2009). Whether the livestock trade was more heavily taxed than other agricultural exports is, however, unclear. Data from 2005-06 on this issue presents a mixed picture. Certain crops – notably sugar, sesame and groundnuts – appear to be more heavily taxed than livestock, while cotton and to a lesser extent sorghum are more lightly taxed (Dirani et al. 2009; DTIS 2008).

Table 3 examines the proportion of the export value of agricultural products that is achieved by producers. From this different perspective, it would appear that livestock producers are not unusually disadvantaged, with sheep-herders retaining more of the value of their export production than any other class of producer listed in Table 3.

Table 1:
Producers' share of export value for selected agricultural commodities and livestock

Crop	Producers' share as % of export price
Sesame	70%
Groundnuts	51%
Gum Arabic	35%
Sheep	71%
Cattle	48%

Source: Recalculated from tables in SIFSIA (2011)

Figures 3 and 4 examine the problem from yet a third angle – the extent to which the prices received by Sudanese agriculturalists for their products deviated from estimated free market prices (Faki and

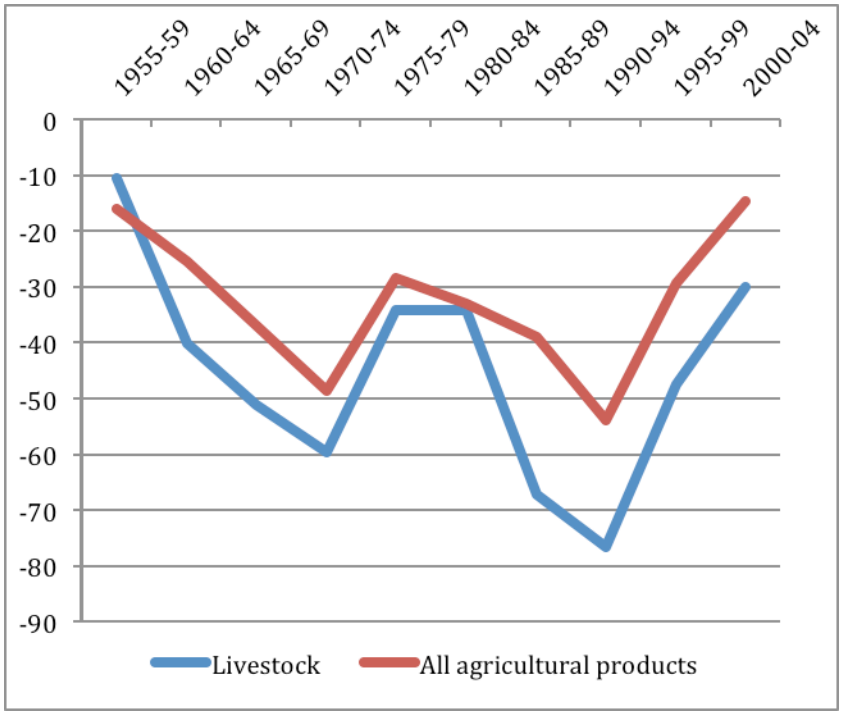
Taha 2007). In these calculations, 'nominal rates of assistance' (NRA) near zero indicate the unimpeded operation of market prices, positive NRA values imply farming subsidies, and negative values signify market distortions that undervalue agricultural output.

"Both [NRA] values have been negative for over half a century, implying a consistent anti-agricultural bias in Sudanese economic policy, with livestock suffering more than the agricultural sector in general."

Figure 3 examines the Nominal Rate of Assistance to Sudanese agricultural production as a whole (including livestock) versus the NRA for livestock alone. Both values have been negative for over half a century, implying a consistent anti-agricultural bias in Sudanese economic policy, with livestock suffering more than the agricultural sector in general.

Figure 3:

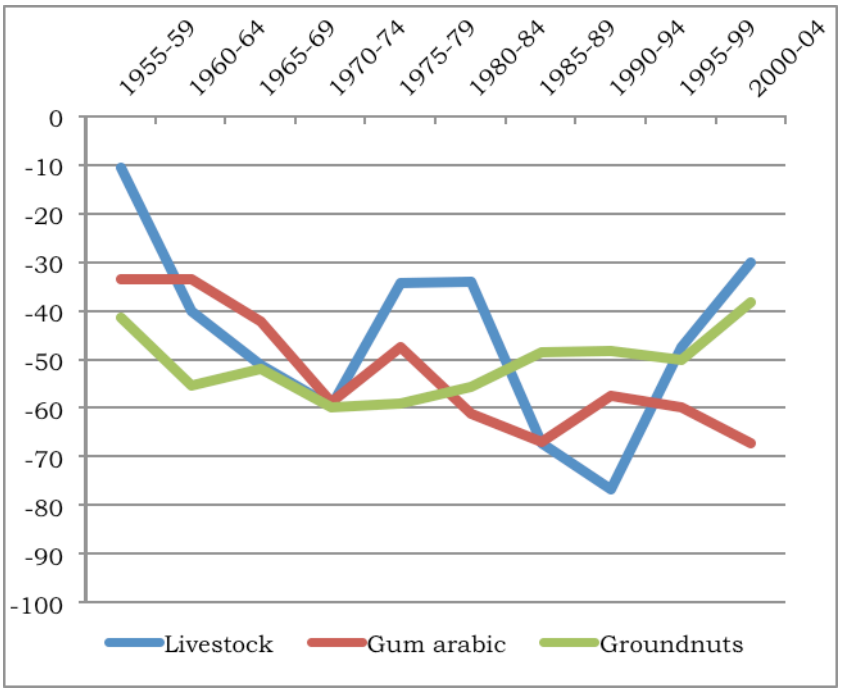
Nominal Rates of Assistance (%) for agricultural production in Sudan, 1955-2004



Source: Faki and Taha (2007)

Figure 4 presents the long-term NRAs for three chronically disadvantaged agricultural sectors: livestock, gum arabic and groundnuts. On the whole, livestock owners may suffer more than farmers as a result of government policy (Fig. 3), but Figure 4 makes it clear that pastoralists are probably no more disadvantaged than certain kinds of crop farmers.

Figure 4:
Nominal Rates of Assistance (%) for livestock, groundnuts and gum arabic production in Sudan, 1955-2004



Source: Faki and Taha (2007)

"There are also aspects of government livestock policy that serve pastoralists reasonably well. Foremost amongst these relative successes is the live animal quarantine system, which has helped Sudan retain 10% of the world market share in officially recognized sheep exports…"

In summary, it is likely that pastoralists are economically disadvantaged not because government policy targets them in particular, but because they are part of a wider class of producers with characteristics that leave them open to exploitation – numerous, small, geographically and politically marginal producers engaged in traditional, rainfed agriculture.

There are also aspects of government livestock policy that serve pastoralists reasonably well. Foremost amongst these relative successes is the live animal quarantine system, which has helped Sudan retain 10% of the world market share in officially recognized sheep exports (DTIS 2008). If we compare the history of live animal exports from Sudan to countries that have no quarantine system, the importance of Sudan's quarantine system is clear. When the Rift Valley Fever outbreak occurred in the Horn of Africa in 2000-01, Sudan was able to start exporting sheep again to Saudi Arabia as early as 2002. In contrast, areas of Somalia (Somaliland and Puntland) that were not internationally recognized were not permitted by the Saudi authorities to export again until 2009, by which time Djibouti had grabbed market share by (like Sudan) instituting a state-sanctioned quarantine system (in 2006). During the ban, Somali traders developed unofficial methods of selling animals to Saudi Arabia though Oman and Yemen, but at reduced profits and increased risks of exploitation by traders in those

countries (Majid 2010). Majid refers to 'the stamp of credibility that a sovereign country can bring to the sensitive issue of livestock health regulations' (2010: 3). Whatever its deficiencies, the Sudanese quarantine system has retained this credibility, to the considerable (but hard to measure) benefit of Sudanese sheep producers, traders and exporters.

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Economic trends in the livestock sector and future research

Circumstantial evidence of the impact of commercialization on herd management is provided by a livestock survey in 2010 that documents a shift in the species composition of pastoral herds in North Kordofan. The official livestock population estimates in Table 2 were generated by a model that assumed relatively constant proportions of different livestock species in the Kordofan regional herd from 1975 to 2010. In comparison to survey results from 2010, the official model has underestimated the number of sheep by several orders of magnitude and overestimated the numbers of all other herd species. There would appear to have been a measurable shift in the species composition of Kordofan herds in favor of Sudan's most important export species - sheep.

Table 2:

North Kordofan livestock population estimates – 1975-2010

	Cattle	Sheep	Goats	Camels	Total TLU
1975	937,127	2,470,580	1,683,647	851,587	
2010 official	960,503	7,223,357	3,605,603	1,212,613	
2010 IFAD	465,000	22,265,000	2,064,000	747,000	
TLU 2010 official	672,352	722,336	360,560	1,212,613	2,967,861
TLU 2010 IFAD survey	325,500	2,226,500	206,400	747,000	3,505,400

Source: Information Centre, Ministry of Animal Resources and Fisheries for 2009 and 2010 official statistics; IFAD unpublished records for 2010; Sudan National Livestock Census & Resource Inventory, Resource Management & Research 1975.

Ideally, one would like to investigate the connection between changing macroeconomic indicators and shifts in productive strategies at the local level by pastoral households and communities. Examination of this connection depends on the availability of evidence, and there seems to have been an (understandable) shift in research emphasis in recent decades away from economically oriented field studies, to issues of resource access and conflict. Scattered evidence from field-work conducted in the 1980s suggests that – at least in that period – increased market involvement could improve the economic and social

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status of subordinate groups in pastoral societies. Among the Hawazma Baggara of Kordofan, participation in international wage labor migration helped to fund investment in herding by poorer pastoralists and encouraged women to become independent income earners through milk marketing (Michael 1987, 1991, 1997). Among the among the Rashaayda of eastern Sudan labor migration supported restocking, as well as undermining traditional status hierarchies between 'free' people and 'slaves' (Young 1987). Among the Nuer of South Sudan rural-urban migration and livestock markets reduced the dependency of young men on senior males whose power was based on the control of cattle, and, 'significantly eased previous social inequalities inherent in the cattle economy itself' (Hutchinson 1996; Lako 1981).

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Unfortunately, the last twenty years has produced little research among Sudanese pastoralists or agro-pastoralists to challenge or update the policy implications of these findings (Casciarri and Ahmed 2009). There may be good reasons for this neglect, but it has left the research community with little fresh information to contribute to policy debates about the national economic significance of livestock, or about the social implications of commercializing pastoral production.

Should Tufts/FIC choose to address these topics, Kordofan provides an appropriate setting in which to do so. Unlike most of Sudan, for North and South Kordofan we have recent field-based estimates of the size and composition of livestock populations (IFAD 2010). Kordofan is known to be an important source of sheep for export (Dirani et al 2009), and the changing species composition of herds in Kordofan apparently reflects these commercial influences. Finally, Michael (1987, 1991, 1997) and others provide at least some comparative baseline data at the household level on economic conditions among pastoralists in the 1980s and 1990s. Research on the economics of pastoral livestock production in Kordofan would appear to be a practical possibility; it would also address a genuine gap in the current policy-relevant literature on Sudanese pastoralism.

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Notes

The national statistics for Sudan presented in this paper were compiled prior to the secession of the Republic of South Sudan in July 2012.

The views presented in this paper are those of the author and do not necessarily represent the views of UNEP or UKaid from the DFID.