

EFFICIENCY AND RANGELAND DEGRADATION: EAST AFRICA AND CENTRAL ASIA

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INADEQUATE COMMERCIAL RANCHING MODEL

Comparative productivity under similar ecological conditions:
Commercial ranching and open-range pastoral systems

Country	Pastoral vs. ranch productivity (<i>Ranching = 100%</i>)	Units of measure
Mali	80-1066% (relative to United States) 100-800% (relative to Australia)	Kg protein production/ ha/year
Ethiopia (Borana)	157% (relative to East Africa)	Kg protein production/ha/yr
Kenya (Maasai)	185% (relative to East Africa)	Kg protein production/ ha/year
Botswana	188% (relative to Botswana)	Kg protein production/ ha/year
Zimbabwe	150% (relative to Zimbabwe)	\$Z/ha/year
Uganda	667% (relative to Uganda)	Ug. Shillings/ha/year

INADEQUATE ROTATIONAL GRAZING MANAGEMENT MODEL

- 1948 to 2003 : two out of five articles in **Journal of Range Management** were about grazing systems and rotational grazing
- Last 50 years - international development agencies promoted rotational grazing in pastoral areas of Africa and Asia. Most donor-funded schemes collapsed when foreign personnel and money were withdrawn
- We now know why: *'Subjected to as rigorous a testing regime as any hypothesis in the rangeland profession, rotational grazing systems have been found to 'convey few, if any, consistent benefits'* (Briske et al. 2008: 11).

ALTERNATIVE MANAGEMENT MODEL

- Migratory movement sustains the largest concentrations of animal biomass on earth, and biologists have recently made progress in understanding why.
- Migratory livestock movements may provide some of the ecological benefits that formal systems of rotational grazing have failed to deliver. The penultimate paragraph of a recent book on animal migration notes:
 - *[A suggestion] ... for conserving some of the ecosystem services that wild migrants provide, if not the original migrations, is to make use of pastoralists, whose livestock herds could potentially perform some of the same functions of the original wild migrants Maybe ...the basis for an alliance of migration biologists and anthropologists, both of who recognize the importance of migratory movement as a phenomenon in its own right, intimately intertwined with the identity of the species or human cultural groups that display the behaviour (Milner-Gulland, Fryxell and Sinclair 2011: 214).*

ECONOMIC PERFORMANCE OF LIVESTOCK PRODUCTION SYSTEMS IN EAST AFRICA - 2009

	Kenya	Ethiopia	Uganda	Sudan
Official value added (billion USD)	1.651	2.511	0.282	12.236
Re-estimated value added (billion USD)	4.124	3.668	0.527	14.525
Percentage increase on official estimate	150	46	87	19

- Recent IGAD studies have documented large underestimates of the livestock contribution to national GDP in four East African countries.
- Perceived inefficiency of current production systems may owe as much to under-enumeration as to any deficiency in actual performance.

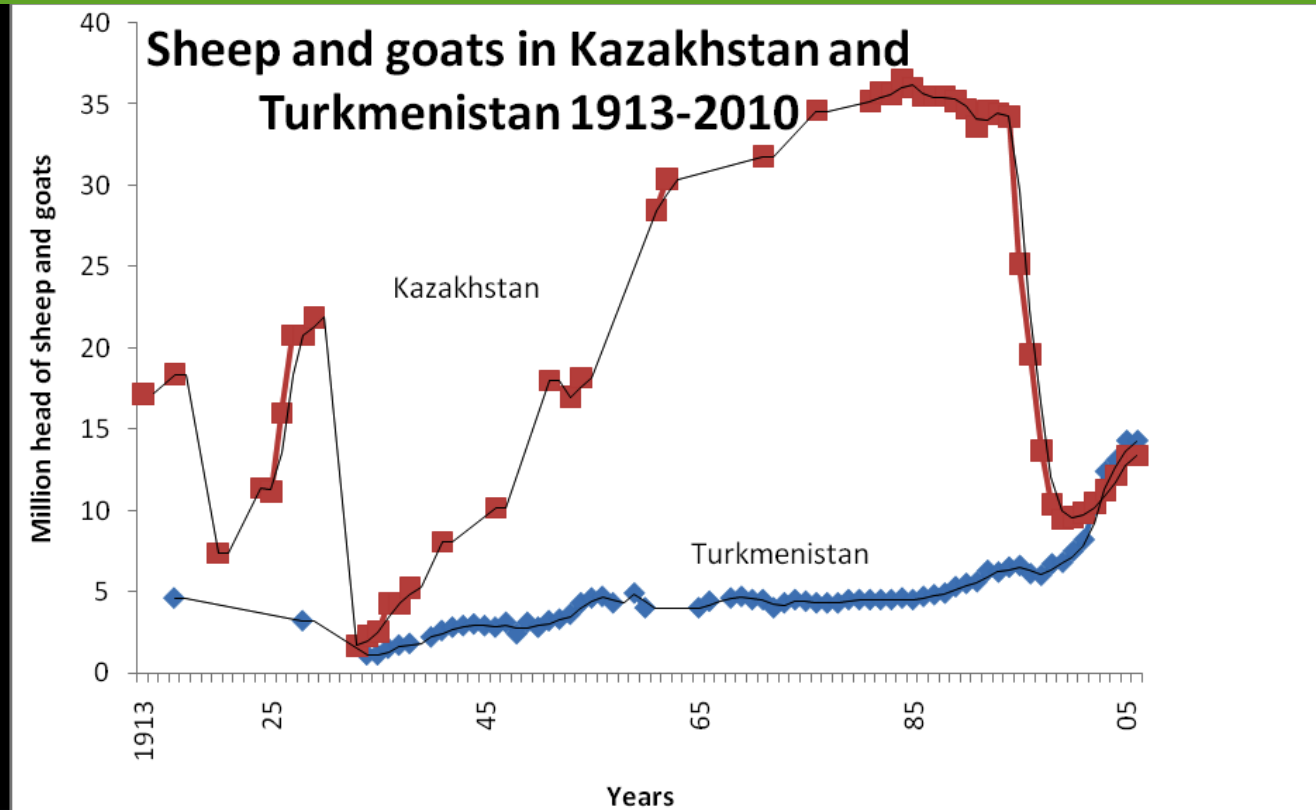
UNDERESTIMATES OF RANGELAND PRODUCTIVITY – CONTINUED

- National accounts exclude value of livestock services, and data on the economic value of these services is poor.
- In Ethiopia the total value of livestock goods and services was nearly **3.5** times greater than the official GDP estimate for livestock.
- To repeat, presumed inefficiency of livestock production systems may owe more to **under-enumeration and poor documentation** than to any deficiency in actual performance.

VALUE ADDED BY LIVESTOCK GOODS AND SERVICES, 2009 BILLION US DOLLARS

	Kenya	Ethiopia	Uganda	Sudan
Total goods and services (USD)	4.61	8.71	0.99	18.13
% recognized in national accounts	89%	42%	53%	80%
% financial services	10%	22%	47%	15%
% ploughing	No estimate	19%	No estimate	No estimate
% transport, equines & camels	No estimate	17%	No estimate	5% (equines only)

CENTRAL ASIA – STEPPE AND DESERT LIVESTOCK POPULATIONS



- Kazakhstan and Turkmenistan are steppe and desert republics with new economies based on hydrocarbons
- Trends in small stock populations are substantially different, reflecting differences in property rights and political organization
- The existence, extent and possible causes of any overgrazing or rangeland degradation in these two situations are dissimilar.

CENTRAL ASIA – MOUNTAIN LIVESTOCK POPULATIONS



- Kyrgyzstan and Tajikistan are mountain republics **without** wealthy hydrocarbon resources
- Trends in small stock populations are substantially different, reflecting fundamental differences in property rights and political organization.
- The extent and possible causes of any overgrazing or rangeland degradation in these two situations are dissimilar.

EVIDENCE ON THE CAUSES AND EXTENT OF RANGELAND DEGRADATION

- In the post Soviet era (after 1991) , Central Asian scientists continued to use **Soviet data and concepts** to describe rangeland conditions
- **BUT,** in all the republics conditions have changed markedly since independence in 1991
- There are numerous reports of pasture mismanagement, degradation, and calls for rangeland rehabilitation
- There have been many donor-funded projects to redress these ills
- **BUT,** the search engine Web of Science (<http://wok.mimas.ac.uk>) reveals **no scientific articles** since the late 1980s with new data on pasture degradation in Tajikistan and one article on deforestation and soils in Kyrgyzstan. Google Scholar shows a similar situation (see Kerven et al. 2011).

DEGRADATION IN PASTORAL WESTERN CHINA

- There are abundant data – in official statistics and scientific publications – on rangeland condition in Western China, but who do you believe?
- Brown et al. (2008) in the first sentence of their book on Western China: 'Grassland degradation is a serious blight on the Chinese landscape' (page xi) OR: 'Despite the problems in precise estimation there is widespread official reporting, anecdotal observation and unofficial acknowledgement of excessive grazing pressure on China's grasslands' (page 46).
- For a contrast, try R.B. Harris (2010): 'I have identified 12 non-exclusive hypotheses to explain degradation and ... examine[d] the ... evidence available for each...Some appear to fail the most basic tests of logic....Others seem to lack supporting evidence....Yet others are logically plausible and can claim some support from data (or at least from anecdotal evidence). In my view however, none has been explored sufficiently rigorously to confidently assert a causal linkage.'