the future of pastoral peoples
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the future of pastoral peoples

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Edited by John G. Galaty, Dan Aronson, Philip Carl Salzman,
Commission on Nomadic Peoples, c/o Department of Anthropology,
McGill University, 855 Sherbrooke Street West, Montreal, Canada
and Amy Chouinard

Communications Division, International Development Research Centre, Ottawa, Canada

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contents

foreword 7

participants 11

research priorities and pastoralist development: what is to be done? 15

opening addresses 27
the future of pastoral peoples R.S. Musangi 30
some remarks on the roles of advisers and advocates Philip Carl Salzman 32

the role of anthropology in pastoral development 39
development for nomadic pastoralists: who benefits? Dan R. Aronson 42
an anthropological approach to economic development Walter Goldschmidt 52
research priorities in pastoral studies: an agenda for the 1980s Michael M. Horowitz 61
livestock and livelihood: a handbook for the 1980s Daniel G. Bates and Francis Paine Conant 89
the failure of pastoral economic development programs in Africa Walter Goldschmidt 101

the political economy of pastoralism 127
political factors in the future of pastoral peoples Philip Carl Salzman 130
herds, trade, and grain: pastoralism in a regional perspective Anders Hjort 135
evolution of policy toward the development of pastoral areas in Kenya S.E. Migot-Adholla and Peter D. Little 144
theoretical implications of pastoral development strategies in East Africa Peter Rigby 157
pasture in the Malian Gourma: habitation by humans and animals André Bourgeot 165
education for nomadic pastoralists: development planning by trial and error John A. Nkinyangi 183

the economics of pastoralism 197
production in pastoral societies Gudrun Dahl 200
livestock as food and money H.K. Schneider 210
economic institutions and pastoral resources management: considerations for a development strategy Peter N. Hopcraft 224
consumption and marketing of pastoral products among the Kal Tamacheq in the Niger Bend, Mali Ag Hama 244
women and pastoral development: some research priorities for the social sciences *Vigdis Broch-Due, Elsie Garfield, and Patti Langton* 251

recent changes in bedouin systems of livestock production in the syrian steppe *Faik A. Bahhady* 258

**the role of government in pastoral development** 267

organizing government's role in the pastoral sector *Stephen Sandford* 270

organizations for pastoral development: contexts of causality, change, and assessment *John G. Galaty* 284

bedouin settlement: organizational, legal, and administrative structure in jordan *Kamel S. Abu Jaber and Fawzi A. Gharaibeh* 294

sedentarization of the nomads: sudan *Mustafa Mohamed Khogali* 302

sedentarization of nomadic pastoralists and "pastoralization" of cultivators in mali *Salmane Cissé* 318

livestock development and range use in nigeria *Moses O. Awogbade* 325

planning policy and bedouin society in oman *Mohsin Jum'a Mohammed* 334

**the research process: strategies, goals, and methods** 337

a methodology for the inventory and monitoring of pastoral ecosystem processes *H.J. Croze and M.D. Gwynne* 340

indigenous models of time and space as a key to ecological and anthropological monitoring *Rada Dyson-Hudson* 353

the collection and interpretation of quantitative data on pastoral societies: reflections on case studies from ethiopia *Ayele Gebre Mariam* 359

relevance of the past in projections about pastoral peoples *Daniel Stiles* 370

**references** 379
livestock development and range use in nigeria

Moses O. Awogbade, Centre for Social and Economic Research, Ahmadu Bello University, Zaria, Nigeria

Perhaps no other subject is of more importance and, yet, riddled with more controversy, than the future of pastoral peoples. The controversy simply echoes the agricultural problems facing the Third World countries. It is so in Nigeria, particularly, where 70–80% of the population lives in rural areas and, moreover, depends upon either agriculture or animal husbandry for subsistence. Thus, these peoples’ understanding of rangeland uses and preservation for the future is a special concern.

For Nigeria, interest in livestock producers is especially timely for many reasons. Among them are:

- The continuous shortages in meat and other livestock products for the rapidly increasing population and the consequent increases in imported frozen meat and meat products;
- The much-discussed recent drought in the Sahel, which decimated livestock resources;
- The need for appropriate guidelines for use by government agencies engaged in livestock production and range management; and more importantly
- The increasing constraints facing livestock producers because of their tradition-bound production system.

There is no doubt in my mind that Nigeria cannot afford to remain indifferent to livestock producers’ problems.

Unfortunately, Nigeria, blessed with endowments of land, suitable climate, and human resources, is still among the Third World countries that are deficient in high-quality protein. For instance, per-person consumption of animal protein in Nigeria is only 15 g/d compared with the recommended 25 g. A significant proportion of this comes from domestic national herds, and the rest is imported.

Clearly, the government must try to improve the livestock sector — a sector that is dominated by traditional producers and is subject to the effects of drought, unscientific use of rangelands, and inadequate feed resources.

The problem facing Nigeria’s agricultural systems is not that of insufficient endowments with which to stabilize the livestock and farming sectors; rather, it is that the policymakers are confronted with conflicting national priorities, that is, to improve production from farming and to expand cattle production areas. Economically, the two priorities are equally important and cannot be separated. The question is whether Nigeria, in its
desire to become self-sufficient, can comfortably encompass the economic aspects and, at the same time, arrest problems emanating from overgrazing, overintensive cultivation, and ecological disruptions.

One may feel that the mineral wealth and agricultural potential in Nigeria are sufficient to solve the problems. However, the country's efforts cannot be successful without systematic plans and decisions on which areas can most profitably support a specific activity. Planning and decision-making presuppose the identification of national needs and, based on systematic surveys of the country's resources and potentials, demarcation of areas prescribed for production priorities. Through this step, the nomadic populations' needs can be tied with the role the government wants them to play within production priorities.

It is gratifying that government agricultural policies have visibly shifted toward integrated agricultural development in the rural sector. I believe the reason for the shift is government realization that any long-term improvement in the Nigerian economy must be led by the rural sector, in which the majority of the population work and live. Now, the government must prepare rural people for the role they must play to improve the economy.

In the livestock sector, government policy is now tilted toward the settlement of nomadic herders under the integrated agricultural development projects (IADP). It is believed in official circles that settlement is the only alternative to ecological disaster. Also, settlement is seen as a guarantee for the future of the herders.

To do justice to the subject of livestock producers and production, I will examine the potential for a livestock industry within the country, appraise the national efforts to boost the operational techniques of production, and, finally, put forward suggestions for new approaches.

potential for livestock production: land, animal, and human resources

Any discussion on livestock production systems in Nigeria must centre on resources available to sustain and improve the performance of these systems. Also, importance must be accorded such factors as climate, soil, cultivation, and the prevalence of disease, particularly tsetse-transmitted trypanosomiasis. One may argue that the pattern of land use has had a direct influence upon the livestock production system Nigerian pastoralists have used for centuries — the traditional pattern of transhumance (Awogbade 1980a, b).

Land utilization in Nigeria is currently undergoing rapid and far-reaching changes due to industrial and agricultural expansions (Table 1 and 2). If the changes are not arrested through government intervention, the future for landless nomadic herders is gloomy, especially for the 1980s — a fact that has prompted recent efforts to modernize animal husbandry practices. One change is in the area of uncultivated grazing lands, once the preserve of nomadic herders. These lands decreased from 67% in 1951 to 50% in 1976. Moreover, a further decrease to 39% has been predicted for 1986 (Table 1).

A calculation of the grazing needs of 7 million head of cattle (Table 2) indicates that in 1951 there was a surplus of 33%. This means that 33% of the grazing land was underutilized for this period. From 1951 to 1976 due to
Table 1. Land utilization in Nigeria for the years 1951, 1976, and projections for 1986.

<table>
<thead>
<tr>
<th>Cattle population and year</th>
<th>7 million</th>
<th>9 million</th>
<th>9 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncultivated rangeland primarily used in livestock (%)</td>
<td>67.0</td>
<td>50.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Fallow farmland, 40% of which is usable for grazing (%)</td>
<td>13.8</td>
<td>17.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Nonagricultural land, including towns, roads, airports, etc. (%)</td>
<td>1.0</td>
<td>5.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Land under farm crops (%)</td>
<td>9.4</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Land under tree crops (%)</td>
<td>1.2</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Land under forest reserves, 33% of which is usable for grazing mainly in the north (%)</td>
<td>7.6</td>
<td>10.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Cattle population and year</th>
<th>7 million</th>
<th>9 million</th>
<th>9 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land area required to feed cattle population (6 ha/head) (%)</td>
<td>45.0</td>
<td>58.5</td>
<td>58.5</td>
</tr>
<tr>
<td>Land area available, including entire area of uncultivated bush, 40% of forest reserve (%)</td>
<td>78.8</td>
<td>60.1</td>
<td>50.3</td>
</tr>
</tbody>
</table>

Because of an inaccurate livestock census in the country, it has been totally impossible to assess the level of efficiency of range utilization. What has been done is an estimate of cattle population and the unit of grazable land one animal utilizes. At the lowest estimate of 8 million head of cattle, 8 million sheep, and 22 million goats (West 1978) with an offtake of 8% (International Livestock Centre for Africa 1979), Nigeria seems to possess an adequate number of animals for its requirements. But for many reasons the potential has not been realized.

The poor performance of the Nigerian livestock sector should not be blamed solely on the social, cultural, and environmental problems associated with the livestock owners. In fact, the nomadic system as practiced by the producers is, to some extent, still efficient given the tsetse infestation and seasonal shortages of fodder and other needed inputs. To me, the poor performance is a function of lack of effective planning in production priorities. This includes the lack of efficient management policies and the transfer of appropriate technology to the major producers on whom efficient production depends. In this respect, it would be preferable if solutions were not restricted to increasing animal populations but included efforts toward improving productivity per animal (at present, annual calving rate is 1–2% and milk production is low) and per unit of land with efficient veterinary services, genetic improvement, and health care. As it is now, the grazing system — one unit of cattle for 5–8 ha of unimproved land — requires urgent action.

The major livestock producers are the Fulbe. Elsewhere, I (1979) have detailed their range utilization methods. The Fulbe practice a transhumance pattern of husbandry (Stenning 1959) that, from any practical consideration, is an adaptation to the realities of the natural and the prevailing socioeconomic situation in Nigeria (de-Leeuw 1976). The reasons for low productivity within their husbandry practices are several but three can be singled out: lack of good quality feeds and water supply, inadequate provision of essential requirements for improved production, and disease risks. These have necessitated a transhumant lifestyle. However, the transhumance system as it is being practiced by the nomadic herders does not preclude the process of sedentarization that has been practiced by a few for some time now. They often settle willingly when a sedentary way of life can be achieved without detriment to their stock and their subsistence.

<table>
<thead>
<tr>
<th>State</th>
<th>Target area (ha)</th>
<th>Area acquired (ha)</th>
<th>Cattle (% of total for country)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauchi</td>
<td>2185440</td>
<td>57051.5</td>
<td>9</td>
</tr>
<tr>
<td>Benue</td>
<td>874130</td>
<td>339900</td>
<td>3.6</td>
</tr>
<tr>
<td>Borno</td>
<td>6556320</td>
<td>213725.87</td>
<td>2.7</td>
</tr>
<tr>
<td>Gongola</td>
<td>2185440</td>
<td>207825</td>
<td>9</td>
</tr>
<tr>
<td>Kaduna</td>
<td>1669040</td>
<td>256425</td>
<td>7</td>
</tr>
<tr>
<td>Kano</td>
<td>1214710</td>
<td>25989.9</td>
<td>5</td>
</tr>
<tr>
<td>Kwara</td>
<td>2670300</td>
<td>181899.7</td>
<td>11</td>
</tr>
<tr>
<td>Niger</td>
<td>1942500</td>
<td>50140</td>
<td>8</td>
</tr>
<tr>
<td>Plateau</td>
<td>2039620</td>
<td>159288</td>
<td>8.4</td>
</tr>
<tr>
<td>Sokoto</td>
<td>2913750</td>
<td>465570</td>
<td>12</td>
</tr>
</tbody>
</table>
those who do engage in sedentarization, most maintain a home base at the northern point of their transhumant circuit where some family members remain throughout the year and, in the majority of the cases, engage in farming activities.

To improve and increase production, one should look into the possibilities of encouraging these semimigratory groups to transfer their home base and associated cropping activity to areas where links with government agencies are easy. Such links are imperative now that the government has embarked on a program to encourage total settlement through the creation of grazing reserves. Movement could be encouraged through effective propaganda and provision of essential services.

**national efforts to boost cattle production**

By the early 1960s, it was apparent that the pastoralists of the northern savanna of Nigeria were gradually being pushed out of the more densely populated areas. Moreover, competition for most of the traditional grazing areas (*humris* — dry season grazing; *mashekari* — wet season grazing grounds; and *burtali* — cattle routes to water points) was increasing among the traditional users, the herders and the farmers; the competition eventually caused a significant proportion of the herders to migrate to other areas. Recognizing the problem, the former government of northern Nigeria drew up legislation reserving areas permanently and solely for grazing activities.

Along with alleviating the threat that agricultural and industrial expansion into the rural areas posed to the nomadic herders' economic existence, the program was meant to bring about a gradual settlement of the nomads. It was suggested that if the program were successful, the nomads' children would be educated and regular health services would be made available. Furthermore, economic benefits would accrue through the regular marketing of the livestock products (milk and milk products). The legislation was eventually passed in 1965. But since that time, only small areas have actually been established.

Recently, the government program has been extended to accommodate breeding and fattening centres, pasture improvement to forestall rangeland deterioration, water development, supplementary feed programs, and research into the potential of locally bred cattle.

Past experience has shown that programs that are aimed at improving the quality of pastoral practices almost invariably fail; the possible exceptions are grazing reserves. Most of the pastoralists tend to be suspicious, with good reason, of attempts made by the government to interfere with or change their lifestyle. At present, however, some factors give cause for hope. There is ample evidence that a large proportion of both nomadic and seminomadic herders now realize that they cannot continue their traditional husbandry practices indefinitely. As a result, the herders now have a genuine desire to settle and combine arable farming with cattle rearing (Awogbade 1980a, b). It is estimated that 13% of the farmers of the federally owned Agricultural Development Project in Funtua, Kaduna State, are pastoralists. Many of these have ceased to keep cattle altogether, although some combine herding and farming. There is now some indication that similar projects will be introduced throughout Kaduna State. A large proportion of the pastoral
Fulbe may also be prepared to settle and cultivate if given the opportunity. The only problem in some parts of Kaduna State is that little uncultivated land is now available.

It is now being recognized in official circles that Nigerian resource endowments dictate that livestock rearing remain an adjunct to, and part of, arable farming (see 1975–80 national development plan). If the objective stated in the national development plan is any indication, nomadic herders will be encouraged to take up mixed farming, change their traditional production outlook, and thereby efficiently improve their use of rangelands. To carry out this objective between now and 1985, Nigeria would need 20 Mha of grazable land. So far only 2 Mha have been acquired (Table 3).

Of the total areas already acquired in 10 states, 872 296.67 ha have been gazetted as grazing reserves, and the remaining have yet to be done.

The government has been acquiring land very slowly, perhaps because of the large amount of funds required to pay compensation to the people who hold the land titles, or because of a deliberate effort to encourage entrepreneurship in the sector. Another reason may be the lack of heavy equipment with which to undertake major developments such as firebreaks, access roads, water supply, and stockholding facilities. At present, the designated states lack the capabilities to carry out surveying, demarcation, and construction. The lack of incentives for staff to work in the reserves, vitally necessary to encourage the personnel available, is also a problem.

Paradoxically, the difficulties inherent in establishing grazing reserves in low rainfall and highly populated areas, in the controlling of stock numbers and stocking pressures, and in the establishment of a sound system of range management may frustrate the government in the initial stages of the project. I wish to emphasize this as a warning. To my mind, such development cannot be successfully implemented without systematic planning and decisions about which areas can most profitably support which activity. These two basic steps need to be taken before the problems of managing the reserves and making the target population accept such a gigantic innovation are tackled.

traditional resource management system and an integrated approach

Cattle rearing is still in the hands of traditional livestock owners who belong to the landless nomadic and seminomadic groups (the Fulbe constitute 90%). Their system of husbandry relies mainly on natural grazing and crop residues that replace natural grazing during the dry season. The Fulani annually migrate from north to south in search of fodder and water — a pattern that characterizes their resource management methods.

The seasonal movements of the herders in and out of their traditional grazing grounds in the sudan and sahel zones are determined by the duration of wet and dry seasons, the extent of cultivated areas, and access to markets where dairy products can be sold and proceeds used for consumer goods. Hence a predictable cycle of movement has developed as the most effective
method of exploiting the spatially distributed resources (water, natural fodder, crop residues, veterinary services, market conditions, etc.).

Traditionally, areas south of latitude $12^\circ$ S have not been effectively utilized by the herders due to the infestation by tsetse fly. This infestation has resulted in waste of both natural forage and nutritious crop residues and has led to uneven distribution of the national herds, which, from all indications, is against the fundamentals of good rangeland management.

The government has intensified tsetse-eradication schemes and, through its policy of relocation of the national herds, has been trying to rectify the improper balance. So far, the results have been encouraging. For instance, a recent survey in Lafia and Mariga (both south of $12^\circ$ S) produced evidence that a large number of our nomadic herders have been spending longer periods in areas where eradication of tsetse fly has been intensified. Lafia and Mariga contain 37.7 and 23.5 head of cattle per km$^2$ respectively during the wet season, an indication of a reasonable movement to the highly infested areas. If the trend continues, grazing pressure, on the sudan zone particularly, should be reduced and the natural vegetation allowed to recover in the northern part of the country.

The old symbiotic relationship between nomadic herders and cultivators is breaking down gradually. Formerly, the herders brought their livestock into farm areas after harvest to clear crop residues. Both groups shared in the benefits. No money changed hands. However, in some areas where land is at a premium, there is at present an increasing resentment of the Fulani and their herds. Where herders are given access to crop residues, they now commonly pay for the privilege. One of the reasons may be found in the recent introduction of fertilizer in the farming system. Thus, the farmers may have the erroneous belief that organic manure is no longer required for their fields.

In a survey of 62 households among mixed farming pastoralists and semipastoralists carried out in Dutsinma Local Government areas, Kaduna State, my colleagues and I requested the groups to rank their expenditure on the maintenance of their cattle during the year. The objective was to determine the relationship between input and output on the purchase of crop residues for their cattle. In doing this, we took as dependent variable the amount the herders realized from the sale of cattle for the 1978–79 grazing season and as independent variable the expenditure on such things as crop residues, cattle supplementary feeds, herd boys, etc. A multiple regression linear model was obtained from the data. The most important variable, in all households sampled, was the amount of money spent on crop residues, which alone accounted for 35.5% of the variation in the income or amount realized. Next was investment on herd boys (23.4%) and supplementary feeds (3.8%) (Awogbade 1980a, b).

The major constraints inhibiting development of cattle rearing and, indeed, the traditional system of production are lack of pasture and crop residues (spatially distributed) and infestation by tsetse fly in the southern zones.

In a country where agriculture and livestock are the primary concern of more than 80% of rural dwellers, a rational, long-term approach should be taken so that a more efficient arable and livestock system can be introduced and the land use for both crops and livestock be maximized. Effective assistance from the government is essential for those who have already started in such a direction. In fact, integration of livestock and crop
Table 4. Estimated crop residues in 12 agricultural development projects in Nigeria.\textsuperscript{a}

<table>
<thead>
<tr>
<th>Location</th>
<th>Area (km\textsuperscript{2})</th>
<th>Sorghum (t)</th>
<th>Maize (t)</th>
<th>Grain legumes (t)</th>
<th>Cattle that could feed for 180 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ayangba</td>
<td>13150</td>
<td>4383</td>
<td>2922</td>
<td>2922</td>
<td>7575</td>
</tr>
<tr>
<td>Bauchi</td>
<td>66355</td>
<td>22118</td>
<td>14750</td>
<td>14750</td>
<td>38235</td>
</tr>
<tr>
<td>Bida</td>
<td>17000</td>
<td>5700</td>
<td>3800</td>
<td>3800</td>
<td>9852</td>
</tr>
<tr>
<td>Borno</td>
<td>117000</td>
<td>3900</td>
<td>2600</td>
<td>2600</td>
<td>6740</td>
</tr>
<tr>
<td>Funtua</td>
<td>7500</td>
<td>2000</td>
<td>1700</td>
<td>1700</td>
<td>4000</td>
</tr>
<tr>
<td>Gombe</td>
<td>5300</td>
<td>1770</td>
<td>1180</td>
<td>1180</td>
<td>3059</td>
</tr>
<tr>
<td>Gusau</td>
<td>4000</td>
<td>1300</td>
<td>890</td>
<td>890</td>
<td>2281</td>
</tr>
<tr>
<td>Ilorin</td>
<td>11775</td>
<td>3925</td>
<td>2600</td>
<td>2600</td>
<td>6759</td>
</tr>
<tr>
<td>Lafia</td>
<td>9400</td>
<td>3133</td>
<td>2100</td>
<td>2100</td>
<td>5432</td>
</tr>
<tr>
<td>Kaduna</td>
<td>68000</td>
<td>22700</td>
<td>15000</td>
<td>15000</td>
<td>39037</td>
</tr>
<tr>
<td>Sardauna</td>
<td>3800</td>
<td>1270</td>
<td>844</td>
<td>844</td>
<td>2191</td>
</tr>
<tr>
<td>Sokoto</td>
<td>140000</td>
<td>46670</td>
<td>31100</td>
<td>31100</td>
<td>80644</td>
</tr>
</tbody>
</table>

\textsuperscript{a} Method of calculations: Roughage yield per 450 ha is taken as 1500 kg/ha-year for sorghum and 1000 kg/ha-year for maize and grain legumes (Guidelines on the Development of Grazing Reserves, Memorandum to the National Council for Agriculture and Rural Development, February 1978) and it is estimated that an animal (bull/steer/cow) would be fed daily an average of 7.5 kg of dry matter.

husbandry has several advantages, one of which is a higher income per hectare through efficient utilization of agricultural by-products, animal manure, and access to other social services.

In addition, the federally owned integrated agricultural development projects should, as a matter of priority, include semisettled livestock owners in all the facets of their agricultural development. As of now there are 12 projects in the states where nomadic herders are found (Table 4). To reduce overgrazing and land degradation in the north where visible effects of erosion and overgrazing have been identified, the government should encourage smaller herds. One method is to relocate the national herds to underutilized areas, especially now that the government has intensified the tsetse-eradication program. No doubt, relocation would be acceptable to the nomadic herders because many of them are now complaining of overgrazing.

The relocation of the national herds program has to be intensified with proper propaganda campaigns.

The government also should pay more attention to grazing reserves together with increased fodder production needs to improve production capacity within the country. The current program is focused on the settlement of the nomadic herders; it should concentrate on the aims of reducing cattle numbers in the sudan zone and, thus, arresting erosion and land deterioration, combatting epizootics, and providing much-needed newer and suitable husbandry practices.

In this respect, state and local governments must intensify their efforts to reserve land for grazing. Moreover, the federal government must provide adequate funds for infrastructures such as the demarcation of grazing and cultivation areas by fire traces, access roads, dams, and dipping centres in the reserves. The provision of infrastructures must precede settlement in the reserves. As with grazing pastures, inputs must be provided at subsidized rates and on a sustained basis.
The objectives of establishing grazing reserves — to provide adequate grazing land for the traditional users, to avoid deterioration of the ranges, and to encourage settlement — in my opinion, can only be achieved if the production capabilities of renewable resources and the optimal economic use of the potentials in these reserves are linked into one system of interdependent actions (Awogbade 1980a, b). Existing strategies must be reexamined, refined, and overhauled for the achievement of the desired goals of self-sufficiency in animal production. Also, the pastoral sector must be apprehended as an integral whole, and interacting local, state, and national mechanisms that make coherent national policies feasible must be initiated.

Discussion

Hopcraft: I think it’s easy for government planners to ignore producers and to believe that economic development and increased productivity comes from government activity rather than from the activities and behaviour of large numbers of producers. Brave talk of “government intervention” and “urgent action” begs the question of whether the interventions and actions actually help or hinder the producers and at what cost. In particular, suggestions that pastoralists should settle down and practice farming make no sense in the arid and semi-arid world of the pastoralist. In some areas, certain agricultural activities can be combined with animal husbandry, but often they cannot, and one should not be too optimistic. A further suggestion that disturbs me is the subsidized feeding of pastoralists’ herds, especially with high-cost imported feed. It is unlikely that the output of this process is as valuable as the input, in which case the people would be better off if the expenditure were directly on them, rather than on their livestock. Above all, the danger of creating dependence on unsustainable subsidies is that it diverts producers from viable and self-sustaining activities.

Awogbade: In a number of places in Nigeria, pastoralists are spontaneously settling down to farming; thus it cannot always be seen as impossible. One cannot always compare East and West Africa. The aim of subsidizing feed is to gain Fulani support and avoid their exploitation by private traders. The pastoralists are enthusiastic about subsidized feed and would like more.