The Nigerian National Livestock Resource Survey

A Personal Account

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Introduction

Livestock has historically constituted one of Africa's major economic resources in terms of the livelihoods of its populations, but has remained the poor stepchild of mining and crop production in terms of its contribution to trade and export. This is because livestock has largely resisted transfer from the traditional sector to modern production methods, especially in West-Central Africa. Indeed, throughout most of this region, the majority of the livestock, especially cattle, are managed by a single ethnic group, the Fulbe, who have largely retained a pastoral system (Blench, 1990, 1999a).

The poor yields and extremely low offtake from traditional production systems have been a source of frustration to development initiatives from the early colonial period. A series of attempts to improve on traditional management through ranching and intensive production strategies have an unblemished record of failure (Dunbar 1970). The conclusion, drawn both by NGOs and multi-lateral agencies such as the World Bank, was that a more likely route to success would be through working with traditional pastoralists. Although there is a long anthropological tradition of descriptive ethnography of pastoralism in West Africa, this literature generally includes very little quantitative information, either in terms of the productivity of livestock within these systems or the numbers and types of animals produced in

The following are expansions of the main acronyms used in the present document :

FAO	Food and Agriculture Organisation
FDL&PCS	Federal Department of Livestock and Pest Control Services
FGN	Federal Government of Nigeria
IBRD	International Bank for Reconstruction and Development
ILCA	International Livestock Centre for Africa
LIMECU	Livestock Monitoring, Evaluation and Co-ordination Unit
NLPD	National Livestock Projects Department
NNLRS	Nigerian National Livestock Resource Survey
RIM	Resource Inventory and Management
SAP	Structural Adjustment Programme
SLDP	Second Livestock Development Project
SRF	Systematic Reconnaissance Flights
TLDP	Third Livestock Development Project

Administrative Divisions

Subsequent to the fieldwork discussed in this paper, Nigeria has twice created more States. Gongola State was split into Adamawa and Taraba states, Borno into Borno and Yobe. In September 1996, the Federal Government embarked on another round of State and Local Government creation, and there is no reason to think this process has halted. In the face of this administrative instability, the States referred to in the text are those that existed at the time of the surveys reported here.

particular ecological zones. In planning terms, therefore, a major information lacuna was held to exist.

Enumerating and describing highly mobile populations, especially those who have reasons to be suspicious of the motives of central government, is a challenging technical task (Blench 1994). However, it is also an ambiguous political act; very often governments do not really want to know the answers to some of the questions they purport to ask. Nation-states have an investment in "their" resources and pastoralists who treat borders as porous and to be crossed at will seem to contradict the process of constructing national identity (Blench 1996). If livestock populations are used to calculate revenue allocations to regional veterinary departments, and an objective survey comes up with figures at variance with those established by interpersonal negotiation then the temptation will be to reject or ignore the results of that survey.

It was in this context, an absence of reliable quantitative information about the traditional sector, that the Nigerian National Livestock Resource Survey (NNLRS) was commissioned. Originally conceived as a technical exercise to backstop the World-Bank funded Third Livestock Development Project, it rapidly took on a strong political colouring. The survey took place between 1989 and mid-1991, and the final report was eventually accepted by the Federal Government in late 1992 and printed in 1993. In mid-1993, a preparation mission, co-ordinated by FAO/CP for the World Bank went to Nigeria to prepare a Third Livestock Development Project. This paper[1] is an informal account of the survey, focusing on the chronology and methods, as well as the attitude of the Federal Government of Nigeria to such a survey and finally the use that might be made of the results. The results provide an illuminating commentary on the value placed on such surveys by their commissioners.

Rationale and Chronology of the Project

Initial Justification

Prior to 1990, official livestock population figures for Nigeria were derived indirectly from various administrative sources. These included *jangali* tax, vaccination returns, slaughter records, trade movements and exports. Such information was prone to error, bias and

[1] Although the research on which this paper is based was conducted under the auspices of Resource, Inventory and Management (RIM) the opinions expressed here are mine alone. I would like however, to acknowledge discussions with my colleagues in RIM during the survey, principally David Bourn and William Wint, as well as the many Nigerian Government officials who provided valuable insights into the workings of the State and Federal bureaucracies. The desk officers working for the World Bank during the course of both the NNLRS and the subsequent FAO/CP mission were extremely helpful in explaining the long-term strategy underlying livestock development in Nigeria. I have also benefited from discussions with colleagues in both FAO and the World Bank about the outcome of the appraisal mission.

manipulation and its interpretation was therefore highly problematic. Data collection was rarely standardised or methodical and any given statistic was usually incomplete. Unverifiable assumptions had then to be made about the proportion of the total population represented. A further inadequacy is that only certain species of livestock were included (Colville and Shaw 1950; Fricke 1979).

Given these uncertainties, together with the fact that estimates of current livestock populations are extrapolated from old data, it is not surprising that such estimates have always been viewed with a degree of scepticism. Nevertheless, as soon as official population figures appear in print, they are widely quoted, and acquire a spurious credibility. Typically, for example, the Nigerian government will submit livestock numbers to FAO's annual statistical synopses. Failures to submit further figures are covered by FAO extrapolating growth from what data they have using standard rates of increase. The extrapolated figures are then used in official documentation within Nigeria. In one egregious example, the cattle population of Nigeria continued to "increase" during rinderpest period of 1984-1985, when perhaps up to a third of animals died.

The NNLRS was conceived in the early 1980s as a replacement for these estimates, to be based on an objective, repeatable methodology. The original inspiration was low level aerial survey using Systematic Reconnaissance Flights (SRF). The SRF technique was originally developed for the estimation of wildlife populations in East Africa (Norton-Griffiths 1978), but was subsequently developed for the assessment of livestock populations and extended to cover a wide range of other parameters (ILCA 1981; Milligan and de Leeuw 1983; RIM 1992). A series of small-scale surveys were undertaken during the 1980s in Nigeria, mostly under the auspices of IBRD-funded livestock projects, but also through the International Livestock Centre for Africa (ILCA[2]). As a result, the idea grew up that it would be valuable to survey the whole country.

Such a survey was certainly necessary. Progressive growth in human population and an accompanying expansion of cultivation were

[2] ILCA has since been conjoined with ILRAD to form ILRI (International Livestock Research Institute), based in Nairobi.

bringing about widespread changes in the Nigerian environment. The need for accurate and up-to-date information about livestock resources was thought to be urgent: more reliable livestock population statistics and a better understanding of the changing patterns of distribution and production should be essential to more effective livestock planning.

Although the official documents of the Federal Government of Nigeria had recognised the need for an objective assessment of the distribution and abundance of the country's livestock resources, the debate about how to achieve this had not resulted in any significant plan. Eventually the requirements of an externally generated livestock project forced the issue. Without credible data, economic planning of the classic type could not go ahead and rates of return could not be calculated. As a result, the IBRD-funded Second Livestock Development Project (SLDP), stipulated that a National Livestock Resource Survey be conducted using low level aerial and complementary ground survey techniques. The Appendix gives the precise terms of reference for the project.

Chronology

The NNLRS was initially intended to provide baseline data for the SLDP, which began in 1985. A lack of commitment of the part of FGN resulted in considerable delays and the NNLRS eventually became preliminary to the Third Livestock Development Project (TLDP) projected for 1992-1993. Resource Inventory and Management (RIM) was commissioned to carry out a national survey of livestock resources.

The project was divided into two phases and carried out over a two-year period. The initial phase, in 1989, was a pilot study to demonstrate and develop methodologies, combining the use of low level aerial survey and complementary ground studies, suitable for application over the whole country. The pilot study report, "Livestock Resources in Niger and Anambra States, with Recommendations for the National Livestock Census" (RIM 1989), was accepted by the Government and led on to the NNLRS.

The national survey took place throughout 1990, with periods of intensive fieldwork from January to May, and August to December. The results were processed and analysed during early 1991, and a

draft National Synthesis Report was submitted in May 1991. The training element of the project was intended to include some "on the job" training of Department staff during the survey itself, as well as a four week course on data collection and management which was given to nominated staff in June and July 1991.

As well as regular internal reporting on the progress of operations and the production of working papers on various aspects of the study, the Federal Department of Livestock and Pest Control Services organised a workshop and convened a series of meetings to discuss methods of data collection and analysis. Apart from air and ground surveys conducted directly by the contracting company, university-based consultants were commissioned to survey urban livestock. These reports were submitted to RIM throughout 1990 and into early 1991 and in some cases these were returned for clarification or re-analysis of data.

Although the commercial livestock production sector in Nigeria remains stubbornly small, it plays a large part in the imagination of livestock planners. It was originally not part of the brief for the NNLRS, but reviewers of the draft report noted its absence in the text. It was decided that a supplementary study was required, and a nation-wide survey of commercial livestock enterprises was conducted during February and March 1992.

An additional problem created by this was that between 1990 and 1992, the number and boundaries of the States changed, hence the regional data were not strictly comparable[3]. In addition, economic decline and the virtual disappearance of feed subsidies meant that the numbers of animals within the commercial/intensive sector probably fell substantially within the period 1990-1992. Hence the results cannot be simply added to the NNLRS figures for 1990.

Structure of the Final Report

These changes involved a number of amendments to the proposed outline of the report. The final version is structured as follows:

3. Cf. encadré, p. 626.

Volume I:	Executive Summary	
Volume II:	National Synthesis	Overview and animal production data
Volume III:	State Reports	Socio-economic and geographical data on individual States
Volume IV:	Urban Reports	Surveys of major urban areas
Volume V:	Atlas	Density and distribution maps of livestock numbers and livestock and related practices
Volume VI:	Commercial Producers	Listing and numbers of enterprises in the commercial sector by State

Table 1
Structure of the Final Report.

The Livestock Department was also provided with a computer database, incorporating menu-driven map displays, containing all the processed population data; and a supplementary Training Manual used during the training course, which summarises the methods of data collection, and illustrates the relevant techniques of data processing and mapping.

Methods

The principal method used was integrated air-ground survey. Aerial survey is used to establish the numbers and size of herds in open areas as well as numbers and sizes of settlements. Ground survey has a quantitative aspect, to establish the densities of species and classes of animal not visible to aerial survey, and a qualitative aspect, to explore socio-economic correlates of livestock production practices.

Low Level Aerial Survey

The aerial survey uses the technique of Systematic Reconnaissance Flights (SRF). This type of survey has been conducted in many African countries, including Botswana, Ethiopia, Kenya, Mali, Niger, Senegal, Sudan, Tanzania and Chad. Within Nigeria itself, at least sixteen separate livestock surveys, covering a total area of more 400,000 km^2, have taken place since 1979 (Table 2). The sample intensities were usually between 5 % and 20 %.

Site	Dates and Seasons Surveyed	Mean Area (km²)
Abet	1979 dry and wet, 1984 dry and wet	2,475
Funa Funa	1984 dry and wet	750
Ganawuri	1984 dry and wet	800
Garkida	1983 wet, 1984 dry	1,600
Giwa Napri	1984 dry and wet	3,350
Jos Plateau	1980 dry and wet	8,600
Kurmin Biri	1979 dry and wet, 1984 dry and wet	2,500
Lafia NE	1982 dry, 1984 wet	2,300
Lafia SE	1979 dry and wet	2,325
Mariga	1979 dry and wet, 1984 dry and wet	2,750
Niger and Anambra States	1989 dry	67,000
Pambeguwa	1984 dry and wet	3,000
Sorau Grazing Reserve	1983 wet, 1984 dry	1,325
Southern Gongola State	1983 wet, 1984 dry	43,900
Sub-humid Zone	1982 dry and wet	250,000
Tegina	1984 dry and wet	3,250
Wawa Zangi	1984 dry and wet	3,750

Table 2
Previous Aerial Surveys of Nigerian Livestock.

For the NNLRS, two high-wing light aircraft were flown along a series of parallel flight paths at a nominal height of 800 feet above ground level. Flight lines were spaced at 20 km intervals over the whole country, and each was divided into 20 km sectors. This created a sampling grid consisting of some 2,300 cells, each measuring 20 x 20 km in size. Observers counted all groups of livestock (outside non-pastoral settlements and their immediate environs) and rural human habitation within two ground sample strips, each nominally 500 m wide, on either side of the aircraft. Mean strip width was 508 m, which gave a sample intensity of just over 5 %.

The whole of Nigeria was surveyed from the air in the dry season, during March and April 1990. This established the southern limit of pastoral livestock distribution, as herds would in all probability move northwards at the onset of the rains. South of this boundary, the

distribution of livestock is essentially aseasonal, since village animals do not move appreciably. The wet season aerial survey, flown during September and October 1990, was therefore restricted to the northern four-fifths of the country, covering a total of 1920 grid cells and a land area of 768,000 km^2.

Ground Survey

There were four types of ground survey:

Village survey	livestock numbers in rural villages in relation to rooftop numbers, and recording socio-economic data
Productivity survey	gives productivity parameters for the major breeds of large livestock species
Urban survey	gives animal numbers in the larger towns
Commercial survey	estimates animal numbers in commercial enterprises

Village Sample Surveys

Site visit records established the distribution of livestock species, breeds and livestock related practices. The questionnaire recorded site location, dominant ecology and presence or absence of particular species and practices. 2148 villages were visited by ground teams to collect site visit records, representing 71 % of the inhabited grid cells. Livestock holdings and rooftop data were obtained from a total of 58,162 households within 1851 of these villages (*i.e.* 64 % of inhabited grid cells).

Ground operations carried on throughout the year, obtaining the widest possible coverage, especially of the remoter regions, during the drier months, and concentrating on the more accessible areas during the rains. Village surveys were conducted in the states sequentially, as far as possible working with officials from the State Governments.

Urban Surveys

The usual methods of integrated air-ground survey are ineffective in large towns because of the diversity of housing types and impossibility

of counting rooftops during overflights. As a result it was necessary to commission specific urban surveys. In addition, since such surveys had never been conducted, prior estimates of the densities of livestock in towns varied considerably. In the event, numbers of urban livestock proved relatively insignificant.

Two pilot studies were conducted of urban livestock populations early in 1990, in the towns of Bauchi and Kaduna. This provided a model for a series of 22 other urban livestock surveys conducted by local consultants throughout Nigeria. The aim of the urban surveys was to collect data on the type, number and distribution of livestock kept within settlements whose inhabited area was greater than 10 km^2. Twenty four towns were chosen to reflect the different types of urban settlement and to give broad coverage of the country. Livestock populations of other large towns not surveyed were estimated by extrapolation.

Animal Production Surveys

Animal production surveys aimed to collect a representative sample of female case histories and establish productivity parameters for each of the major species and breeds of Nigerian livestock kept under traditional management. As many breeds have restricted distributions, the surveys were focused on specific regions. Herd productivity assessments were made for the following cattle breeds: Adamawa Gudali, Azawak, Bunaji, Rahaji, Sokoto Gudali, Wadara, Muturu, N'dama and Kuri; as well for sheep, goats, camels, donkeys and pigs. For further discussion of animal species and breeds see Blench (1995) and for examples of the productivity indices gained by the Mature Breeding Female History Method see Blench *et al.* (1999b).

Breed productivity information was obtained by means of inspection of individuals within herd and flocks, and by the direct questioning and recall of the owner or herdsman. Herd productivity assessment was based on the fates of all progeny from a representative sample of mature females. The method provides measures of productivity that could otherwise be obtained only by long term herd monitoring.

Commercial Sector Surveys

As with urban survey, intensive livestock enterprises cannot be captured by the sampling procedures of integrated air-ground survey. As originally proposed, this study was targeted at major commercial livestock production enterprises, defined as those registered companies with a capacity in excess of 2000 poultry, 100 pigs, or 100 cattle, on the grounds that such enterprises would be well known, easy to identify and sufficiently few in number that it would be practical to conduct a complete enumeration. Subsequently, the Technical Advisory Committee changed its recommendations and the following definitions were used for the survey :

- Poultry farms with more than 200 intensively reared productive birds
- Piggeries with more than 50 intensively reared pigs or more than 5 breeding sows
- Small ruminant production units with more than 50 sheep and/or goats, kept in an enclosed area and regularly given supplementary feeds
- Ranches specialising in cattle production with at least 50 head, or occupying a permanent enclosed site of at least 100 hectares.

Essentially these were enumerated by compiling lists available from State livestock Departments and visiting individual enterprises to establish whether they were still functioning and the numbers of animals kept. Estimates for non-visited enterprises were based on the findings of those actually seen.

Major Numerical Results

The results of the survey fill some 1000 pages of the final report and are not easily summarised briefly. The following section therefore gives only the major numerical results. Numbers of livestock kept under traditional management are summarised in two tables: Table 3 shows annual mean livestock population estimates for the whole of Nigeria divided into three parts: derived from aerial observations (Pastoral); from village surveys (Village); and from the urban livestock

Species	Pastoral	Village	Urban	Total	% SE
All Cattle	11,478,145	2,358,078	49,590	13,885,813	1.6
Muturu		114,241	931	115,172	19.5
Zebu and Others	11,473,800	2,248,182	48,659	13,770,641	1.6
Goats	1,142,154	32,287,589	1,023,981	34,453,724	2.9
Sheep	2,678,152	18,356,718	1,057,732	22,092,602	3.2
Donkeys	6,872	920,828	9,132	936,832	3.9
Horses	3,396	194,706	8,110	206,212	5.9
Camels	11,050	76,241	548	87,839	8.2
Pigs	–	3,352,560	53,821	3,406,381	6.0
Cats	–	3,092,378	173,176	3,265,554	4.4
Dogs	–	4,253,794	289,209	4,543,003	4.2
Rabbits	–	1,475,437	244,409	1,719,846	8.3
Giant Rats	–	60,848	3,585	64,433	17.6
Guinea Pigs	–	388,824	85,284	474,108	20.5
All Poultry	–	97,860,320	6,397,640	104,257,960	3.3
Chickens	–	68,244,195	4,156,661	72,400,856	3.5
Ducks	–	11,220,461	573,507	11,793,968	3.7
Guinea-Fowl	–	4,621,670	58,237	4,679,907	4.1
Pigeons	–	13,566,775	1,593,091	15,159,866	7.8
Turkeys	–	207,219	16,144	223,363	11.8
Tortoises	–	83,516	12,660	96,176	12.3
Fish Ponds	–	1,537,845	1,360	1,539,205	18.1
Fish Wells	–	92,279	768	93,047	27.5
Snail Farms	–	5,257	554	5,811	28.9
Bee Hives	–	691,443	–	691,443	6.9

Source: RIM (1992, Vol. II).

Table 3
Populations of Traditionally Managed Livestock.

surveys (Urban). Livestock population figures presented are for the traditional sector, and do not include intensive production units.

Some unconventional species are included in this table: livestock surveys do not usually include snail farms or giant rats (see Blench, 1999b for further discussion of "minor" species). Nonetheless, since these are livestock and can be effectively estimated through rooftop surveys in the same way as chickens and pigs, they were included.

Statistics of this type generate a rather spurious precision and the figures are quoted in this form to allow readers to perform back-calculations. However, given the methods used it is unlikely that any figures are accurate to more than the nearest thousand, and in the case of abundant, mobile species such as cattle, sheep and goats, to the nearest million.

Table 4 summarises the results of the commercial sector survey; it has not been added to the 1990 results, because of the time gap between the two surveys. Only commercially-produced chickens represent a significant proportion of the national livestock resource.

Species	Enumerated Enterprises	Estimated in Enterprises not Enumerated	Estimated Total Number
Chickens	6,144,983	3,962,104	10,107,087
Pigs	51,259	59,980	111,239
Cattle	41,625	42,282	83,907
Sheep	17,858	17,520	35,378
Goats	8,530	9,729	18,259
Enterprises	Enumerated Enterprises	Estimated in Enterprises not Enumerated	Estimated Total Number
Nigeria	1,395	1,839	3,234

Source: RIM (1992, Vol. VI).

Table 4
Commercial Livestock Numbers, March 1992.

Controlling for Fraud

Running a large-scale survey via enumerators in Nigeria is rather like keeping water in a leaking pot. As a source of fraud or error is detected and eliminated in one area, another opens up. This is because numerical data, as in the centralised economies of the former Soviet bloc, has a symbolic value, rather than a truth-value. Statistical summaries of all types are regularly published by the Nigerian Government, but most of these documents are full of evidently incredible figures. Essentially, this is because numbers have a symbolic function; they are published either to justify budget allocations or to try and increase them.

As a result, enumerators did not by and large consider "true" figures to have any virtue, with the consequence that data sheets were regularly falsified. Researchers who conduct surveys in developing economies are usually middle-class white liberals and they have considerable problems with this type of intentional fraud. As a result, many enumerators were able to continue submit falsified datasheets for a considerable period, simply because until the stage of data entry, suspicious numerical patterns did not become apparent.

Once the falsified results began to come to light, a massive programme of checking was undertaken, and many unreliable enumerators dismissed. The second stage was then to resurvey the areas where falsified data had been submitted, overseeing enumeration directly. This proved to be extremely labour-intensive and very much more expensive. Nonetheless, it generally ensured that the final figures collected were reasonably accurate.

One intriguing aspect of the recruitment and training of enumerators was that there appeared to be no correlation between the experience, profession or education of the enumerators and their ability to carry out surveys accurately and honestly. Certainly attempts to use 'experienced' state officials ended in failure, while postgraduates with qualifications in livestock-related disciplines appear to have no knowledge or skills relevant to livestock survey. Indeed the final team used for the survey consisted entirely of female enumerators with no related professional skills, the reliability of whose data collection was methodically tested over a number of months.

Fraud was also a regular feature of the urban surveys conducted by university-based consultants. In many cases, the actual work of planning and executing the studies had been handed over to barely competent graduate students. The numerical results were often completely unusable. In some cases these could be salvaged by re-analysis of the datasheets but on several occasions the survey had to be repeated. Twice the datasheets were fraudulently completed by the consultant and the whole survey had to be rejected. This further illustrated the lack of commitment to accurate numerical data even by senior academics.

Government Reception of the Report

Although a considerable number of individuals within the Nigerian University system were involved in the survey on a consultancy basis, the sector is very large and the numbers not taking part was consequently much larger. Broadly speaking, exclusion from what were seen as lucrative consultancies was a major source of resentment and this led to extremely critical reviews of the work at various stages of the survey. It was frequently said that the survey could have been done in-house, or at least in-country and would have cost substantially less. This is true, but given the problems with fraud and incompetence experienced with the work carried out, the probability that the results would have been of any value is vanishingly low.

Cultural aspects of reactions to the report are also relevant. The National Livestock Project Department was based in Kaduna and its senior management consisted entirely of northerners, who displayed a conventionally ambiguous attitude to the pastoral communities. On the one hand, the *Fulbe na'i* are not only the livestock producers that provide meat for the tables of the rich but also the bearers of "true" Fulbe culture. On the other hand, they live in the bush, do not practise Islam properly, do not have access to the benefits of modern life and somehow need to be helped. The survey was thus stereotyped as a project to record the resources and pattern of pastoral production in the subhumid and semi-arid areas.

The report, however, particularly in its first version submitted to government, tried to present livestock production in Nigeria in as even-handed a manner as possible. To this end, while still giving a dominant role in the text to pastoral production of cattle, it tried to describe all the livestock production systems encountered, giving special attention to a clear-eyed view of those which appeared to be unknown or were little-discussed in the existing literature. In retrospect, this was naïve: cultural practices offensive to the Hausaised élite were deemed either not to exist or to have been grossly exaggerated. This was most evident in the case of the dog trade. Dogs are widely traded throughout northern Nigeria, and professional "collectors" fan out every dry season collecting feral or troublesome dogs from Muslim villages. These are usually brought to a focal market in Plateau State, southeast of Jos. Many Middle Belt peoples consider dogmeat prestigious, and indeed dog slaughter statistics were collected in Plateau by the Veterinary Department. Plateau State people have also become major dealers in dogs, as well as pigs and donkeys (also taboo meats through much of the north). The dogs are either fattened on site or sold to Cross River dealers, who take them to Calabar for further fattening before distributing them to rural markets. The description of this thriving and lucrative trade was received with very ill grace and is much reduced in the final circulated version of the report.

Another production system highlighted in the report was the persistence of scattered pockets of taurine production, even in areas where such cattle were said to be long extinct. In the northern centres of power, only zebu cattle have prestige. The humpless, trypanotolerant taurines characteristic of the humid zone are kept by unbelievers, whilst their small size and absence of milking associates them with a retrograde way of life. It was therefore perhaps unwelcome to learn that taurines are still kept in isolated places throughout the north. Less emphatically than in the case of dogs, it was suggested that this was irrelevant to the report, and that attention should be focused on the zebu. The main body of data on taurines and their cross-breeds, the *keteku*, has now been separately published (Blench 1998a, b).

Apart from objections to the content of the report, government inaction was equally problematic. Once the final report was delivered, the review process, whereby it was sent out to institutions and universities,

took many months. The reviews were responded to in a revised version of the report, and a final version of the report was sent for printing. However, institutional paralysis within the livestock department meant that RIM could not deliver final distribution copies until more than two years after the survey was completed. As a result, the value of the numerical and distributional data for planning purposes became increasingly limited.

Even so, in 1993 a preparation mission co-ordinated by FAO/CP for the World Bank went to Nigeria to prepare a Third Livestock Development Project. The team met with consultants appointed by the Nigerian Government who had been supplied with background material. However, the final report of the NNLRS was not included among these documents and it was announced in a meeting that the figures were not to be used because they were "controversial". During the mission it was also learnt that the report had not been circulated to Federal and State government departments, and so had been rendered effectively useless.

In the event, the parameters of the Third Livestock Project as developed at the request of the government became little more than a bloated list of vehicles and infrastructure that bore no relation to the actual situation of livestock. When the World Bank follow-up team came, the first version of the project was rejected wholesale. However, shortly after this, the World Bank ceased all new loans to the Nigerian Government following objections both to their fiscal policy and their human rights record. Recent political changes in Nigeria have led to requests for some of the frozen World Bank projects to be revived. In the case of livestock, experience suggests that no amount of tinkering with existing institutions could possibly remedy the basic structural defects of such a system and that a moratorium on further interventions should be quietly declared[4].

Finally then, the report of the NNLRS became little more than a resource for academics, a descriptive and numerical study of Nigeria's livestock resource never destined to play a part in the considered

[4] Activities in the livestock sector are now largely in the hands of a consultancy funded through the Petroleum Trust fund (PTF) which is presently trying to reprise some of the activities of the NLPD, using some of their former staff.

development of a national livestock plan. Acquired by internal agencies and universities, it has been used as a source of data, but never in its original context. Much of the raw data has been subsequently reanalysed by FAO consultants as part of a larger project to understand land use patterns in Africa in relation to tsetse distributions, but this is incidental to its original purpose.

Essentially, what occurred was a clash of ideologies. To outsiders, the absence of reliable statistical data was seen to be a major lacuna in the atternpt to develop a rational development strategy. The absence of any internal aerial survey capacity was the justification for bringing in outside consultants. Although the Nigerian Government pretended to believe this for purposes of signing a loan agreement, in reality it was accorded lowest priority. Hence the many years delay in initiating it.

The NNLRS is not the only case where a report on a major livestock survey in Africa has been effectively shelved. The Niger Range and Livestock Project Final Report (Swift 1984) was the result of a long programme of detailed socio-economic and animal production survey and also included an aerial survey component. In a similar way, its results have circulated among academics, but have failed in the goal of aiding the formulation of government policy in Niger Republic.

Conclusion

The NNLRS was supposed to build up local capacity to mount further surveys and establish a regular livestock monitoring system. In reality, virtually no commitment was shown by government to assigning personnel and no such capacity was in fact developed. Perceived from within Nigeria, a group of middle-class white consultants came into the country, spent a great deal of money and produced a report which might as well have contained invented figures. Statistics provide justification for the disbursement of government funds and these statistics were inconvenient. Hence it became politic to ignore them and not to distribute the report in which they were found.

Why should a government commission an expensive survey and then ignore the results? The external, economists', view reflected by the

IBRD and other agencies, is that if a development project is to be successfully designed then it needs to be based on sound factual data. If a country has yet to develop the internal capacity to conduct such a survey on a massive scale then external consultants must be commissioned to carry it out.

It would be a truism to say that surveys of this type always have a political context; but outsiders can rarely be sensitive to all the elements involved. Indeed, they often need to pretend that they are completely unaware of such undercurrents. Foreign consultants must adopt the role of the rational, objective scientist, feigning ignorance of the political implications of their results.

Statistics are, of course, not only manipulated in developing countries; statistical data in Europe and America is regularly subject to distortion or simple non-publication where its results contradict the ideology of the ruling party. The painful element of this is probably the knowledge that a clearer appreciation of the situation and whereabouts of livestock producers, especially pastoralists, could improve their welfare. Relatively simple interventions could alleviate poverty in rural areas and develop non-oil industries to generate revenue in the future.

In actuality, the conclusion must be rather dispiriting. A great deal of knowledge was gained, much of it of scholarly interest, as well as of practical relevance to planning for livestock development. Yet the Nigerian Government, although it has in principle accepted the report, has not adopted it, in the sense that its findings are to be incorporated into any future plan for livestock. For the staff of both government departments and parastatals, numerical and descriptive data relating to livestock is irrelevant, since neither policy nor activities ever have been driven by empirical research. Government is delinked from actuality, internally responding to the constantly changing internal political currents of individual departments as well as to larger external political realities. Developers, especially from a culture where economic models of human motivation are omnipresent find this insouciance difficult to accept. They imagine a small application of social engineering may be enough to return the situation to "normal", despite decades of experience to the contrary. To misconceived projects and wasted resources there is no end.

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Appendix:
Terms of Reference for the National Livestock Census

1. Conduct low level aerial surveys covering the whole of Nigeria during the dry and wet seasons of 1990, using the technique of Systematic Reconnaissance Flights (SRF). The southern limits of wet season coverage will be determined from the findings of the initial dry season survey, on the basis of the established boundary between forest and savanna zones, and climatic considerations.

2. Map and quantify the seasonal distribution and abundance of all common livestock species, human habitation, vegetation and land use, at both the National and State levels. Sampling intensity should be such that population estimates will have acceptable levels of statistical confidence, with standard errors of 5% for cattle, sheep and goats, and less than 10% for the other (common) livestock species.

3. Interpret and validate aerial survey findings by means of complementary ground studies of livestock production systems throughout the country, including both animal production and socio-economic components.

4. Conduct animal production ground surveys on a regional basis, focusing on: the characterisation and distribution of major livestock breeds; herd productivity parameters; management strategies; and perceived production constraints. Determine the structure and condition of cattle, sheep and goat populations by sample herd/flock examination.

5. Conduct socio-economic ground surveys of sample villages in rural areas on a regional basis to: determine livestock holdings and livestock to human habitation ratios; describe and map the distribution of predominant livestock production systems; and identify major livestock markets.

6. In collaboration with local institutions, conduct surveys of selected towns and cities to determine the size of urban livestock populations.

7. Create a simple, efficient computer database incorporating the results of the National Livestock Census.

8. Collaborate as closely as possible with the Federal Livestock Department in other related studies to be carried out as part of Livestock Information Year; in particular the proposed study of Livestock Trade and Marketing, and the revision of the Tsetse Distribution Map.

9. Familiarise participating FLD staff with all aspects of data collection and analysis, and on completion of the National Livestock Census hold a formal training course in Nigeria on rapid resource assessment and data analysis.

10. Present the results of the National Livestock Census to the Department in two forms: a printed report incorporating an atlas of Nigerian Livestock Resources; and as an integrated, geographically co-ordinated, computer database, for the future use of the Livestock Policy and Planning Unit.