

**AIRGRAM**

**DEPARTMENT OF STATE**

PD-AAB-195-81

Proj: 774  
6200774 (2)

A.I.D.  
Reference Center  
Room 1656 NS

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For each address check one ACTION | INFO

DATE REC'D.

TO - AID/N : TOAID A 531 X

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FROM - URMID LAGOS

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DATE SENT  
88 AUG. 21, 1969

SUBJECT - Non Capital Project Paper (PROP)  
Project 774: Livestock Development - Nigeria

REFERENCE :

Country: Nigeria Project No. 620-11-130-774

Submission Date: July 31, 1969 Original X Revision No. \_\_\_\_\_

Project Title: Livestock Development - Nigeria

U. S. Obligation Span: FY 1961 through FY 1971.

Physical Implementation Span: FY 1961 through FY 1971.

Gross Life of Project Financial Requirements:

U. S. dollars.....\$ 5,973,000

U. S. Owned local currency.....\$

Cooperating Country Cash Contribution.....\$ 8,106,000

Other donors.....None

Total.....\$14,079,000

1/Plus \$61,000 U.K. sterling.

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ORIGINATION	OFFICE	PHONE NO.	DATE	APPROVED BY:
Embassy/Casleroy	AGH		6/30/69	V. C. Johnson Michael W. W. Miller (Acting) Director (A-1000)

AND OTHER REFERENCES

AGC (in draft)  
FBI (in draft)

cc: Director

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1. Summary Description and Tabulated Inputs

This project was originally initiated to assist the Northern Region Ministry of Animal and Forest Resources in developing the livestock and poultry industries of the region, under the title of Livestock Development, North (774). The importance of the project is related to the place that livestock and poultry play in overall economic development. The total value of all livestock and Livestock Products in Northern Nigeria amounts to some 200 Million dollars, or between 12 and 15 percent of agricultural output. About 750,000 head of cattle are slaughtered annually in Nigeria, in addition to small stock (Sheep, Goats, and Pigs), with the main producing area located in the North and the major mass consuming markets situated in the coastal areas. However, the Nation's annual per capital consumption of red meat is estimated at less than 25 pounds with beef making up the largest percentage. Meanwhile the demand for beef is increasing at an estimated rate of 3 percent per annum, and upwards of 35 percent of all slaughter cattle originate outside the country (principally Chad and Niger).

While the project is presently entitled Livestock Development - Nigeria (774), and is theoretically country wide in scope, the primary objectives remain essentially unaltered. With the change from Regional to State administrative organizations in late FY 1968, project activities are presently being conducted in cooperation with a variety of Governmental agencies. Thus, USAID is currently providing assistance to the following agencies through the provision of direct hire and PASA Technicians:

1. The Livestock and Meat Authority, Kaduna
  - a. Livestock Advisor, Poultry - 1
  - b. Livestock Advisor (TDY basis) - 1
2. The Interim Common Services Agency, Kaduna
  - a. Livestock Advisor, Training - 1
  - b. BLM/PASA Range Management Instructor - 1
3. The Federal Department of Veterinary Research, Vom
  - a. Veterinary Pathologist - 1
  - b. USPHS/PASA Veterinary Virologist - 1
4. The MARR, North-Western State
  - a. BLM/PASA Range Management - Advisor -  $\frac{1}{2}$  time basis
5. The MARR, North-Central State
  - a. BLM/PASA Range Management - Advisor -  $\frac{1}{2}$  time basis
6. The MARR, North-Eastern State
  - a. Livestock Advisor, Ranch Management ( $\frac{1}{2}$  time on Ranch Management and  $\frac{1}{2}$  time on Range Management) - 1

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This assistance encompasses the following activities:

1. The establishment of a cattle breeding station to provide selected bulls for upgrading indigonus beef cattle in the North- Eastern State.
2. The development of large scale pilot demonstration grazing reserves to introduce proper range management techniques, leading to improved range use and increased cattle productivity, in the North-Eastern, North-Central, North-Western and Benue-Plateau States.
3. Poultry production, including a supply of Chicks and marketing practices.
4. Combined Cattle Fattening, Abattoir and Meat Marketing complex.
5. Livestock services training center to provide sub-Professional Field staff in support of developing the livestock and poultry industries.
6. Improved vaccine production and disease diagnosis to upgrade Veterinary services.

In all activities, on-the-job training is a key element to ensure continuation of newly introduced ideas and Methodologies after USAID assistance terminates.

Present project activities are scheduled for an orderly phase out in FY 71 wherein positions will be terminated with tour completions of on-board Technicians. However, an exception to this plan involves some further support to the Livestock and Meat Authority in that the present TDY-basis Livestock Advisor is programmed to commence a two-year tour in August 1969. Consideration for any additional support to LMA and/or Livestock and Poultry development in general should be evaluated in relation to ovents emanating from the current crisis in the country.

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Table

Country: Nigeria

PROP Date: Mo/Day/Yr  
7/ 31/69

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Rev. No.

Proj. No. 620-11-130-774

Non Capital Project Funding (Obligation in \$000)  
Project Title: Livestock Development - Nigeria

Fiscal Year	AP #L/G	Total	Cont. (Non Ad)	AID	PASA	CONT	Participants U.S. Agens.	Cont.	Commodities Dir. US Agen	Cont.	Other Costs	
											Dir. Agen.	U. S. Cont.
Prior through Act. FY 1969	TC G	TC 5,055 + 84 UK Sterling	753	1679	700	70	239		1,494		190	683
Oper. FY1970	TC G	400	25	186	103		40		10		36	25
Budget FY1971	TC G	289		198	44		17		7		23	
B + 12 FY1972	TC G	191		132	33		7		3		16	
B + 2 FY1973	TC G	-	-	-	-	-	-		-	-	-	-
B + 3 FY1974	TC G	-	-	-	-	-	-		-	-	-	-
All Subs												
Total	5935 + 84 U.K. Sterling		778	2195	880	70	303		1514		265	708

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Table 2

Country: Nigeria

Prop Date: 7/31/69  
Original  
Proj. No. 620-11-130-774

Estimated Cooperating Country Financial  
Inputs: Livestock Development - Nigeria

Cumulative thru 6/30/69	\$6,411,000
FY 1970	695,000
FY 1971	500,000
FY 1972	<u>500,000</u>
Total Estimated	<u>\$8,106,000</u>

## 2. Environmental Setting

Northern Nigeria encompasses some 191,360,000 acres, of which approximately 100,000,000 can be described as grazing land. The area covers five distinct vegetative zones (Sudan, Sub-Sudan, Northern Guinea, Southern Guinea and Plateau) with different rainfall levels, running as high as 80 inches per annum in the Southern Guinea Zone, but decreasing to less than 20 inches in the Sudan Zone. The two specific seasons, wet and dry, create manifest problems in respect to livestock production. Not less than 80 percent of the region is infested with the tsetse fly (*Glossina* sp.), in the wetter months at least, and during the dry season feed and water supplies become extremely deficient for periods of four to eight months.

Some 54 percent of Nigeria's 60 million human population is located in the northern climes. The Moslem religion predominates with 73 percent professing Islam. The major tribal groups are the Fulani, Hausa, and Kanuri. In general, the Hausa and Kanuri are sedentary agriculturists, while the Fulani are nomadic livestock raisers with an aversion to farming per se.

Estimates of animal numbers are: 7 to 8 million cattle; 15 to 20 million sheep and goats; 5 million donkeys and horses; 5 to 10 thousand camels; along with poultry and a limited number of pigs. Cattle are considered the animal par excellence and under the extended family pattern, total livestock numbers assume paramount importance as they represent both status and security under a traditional subsistence type of socio-economic existence. Herein, cattle are sold by the head and with considerable reluctance, but primarily to meet cash requirements in connection with an annual tax of seven shillings (\$1.00) per head of cattle.

A high percentage of the livestock are normally kept by the nomadic and semi-nomadic producers who are forced to migrate with the seasonal rains to find pasturage and water for their herds and/or to avoid the hazards of tsetse flies. Periodic movement through agricultural areas permit the sale or barter of milk for needed food grains, while grazing on farn aftermath. A major portion of the ranges are seasonally burned, thereby reducing perennial grasses and grazing value. Moreover, the general laissez-faire nature of migrations and increasing animal numbers, are causing a rapid deteriorating of grass cover in many areas. Concurrently, an ever increasing demand for farmland restricts still further available natural pasturage. The systematic feeding of concentrates is practiced by only a few farmers, primarily as a banking operation for capital rather than for monetary gain, as livestock sales are by the head and not on the basis of quality or degree of fatness.

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Animal keeping in Northern Nigeria has evolved over many years in direct response to conditions of climate, soil, water, vegetation, and animal disease. Hence, each ecological niche has been filled by a particular people or group raising breeds of cattle best suited to the demands and limitations of the total environment including the needs of tribal owners. This demands an animal (s) with the ability to walk great distances and undergo extended periods of semi-starvation. Under such severe conditions, animals bred for milk production are out of place. Although cattle are used some for draft, riding and transport, and milk is a very important subsistence and barter item, the cattle of the area are best described as meat animals. They are all of Zebu breeding and may be divided into four groups according to horn type and six distinct tribal breeds with primary locations as follows:

1. Short-horned
  - a. Madara or Shuwa Arab-predominant breed in the North-Eastern state, and centered around Maiduguri.
  - b. Sokoto Guadali - localized in the Sokoto area of North-Western state, and most important breed in the area.
  - c. Azaouk or Adar - of minor importance but found along Nigeria's North-Western border with Niger.
2. Medium horned
  - a. Adamawa Guadali - largely concentrated in Adamawa Province of the North-Eastern state.
3. Lyre-horned
  - a. White Fulani or Bunaji - predominant breed in the North-Central, West Central and Kano states.
4. Long-lyre-horned
  - a. Red Fulani or Bahaji - A wide ranging breed that epitomizes the true nomadic type, found throughout Northern Nigeria, but especially along the entire Northern border.

While true breed differences no doubt exist with respect to productivity, factual data are not at hand to fully differentiate between them. A low calving rate (50-55%), advanced age at first calving (3-4 years), high total death loss (30%), and advanced age required to reach desired market weight (some 650 to 900 pounds at 5 to 7 years) allows an annual offtake of about 9 percent, in addition to a 2-3 percent herd increase.

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Over the past quarter century several killing diseases have been partially controlled (e.g., rinderpest, anthrax and black leg). However, as each major disease is controlled, others automatically assume greater importance. Apart from blood parasites transmitted by ticks and other arthropods, and internal parasites, many additional diseases are still rampant (i.g., contagious bovine pleuropneumonia, streptothricosis, trypanosomiasis, foot and mouth disease, rabies, tuberculosis and brucellosis). Several diseases, principally rinderpest, foot and mouth disease, and trypanosomiasis, are major bottlenecks to developing markets for Nigerian beef. The first two preclude the shipment of fresh meat to areas free of such maladies, and the third creates a problem when moving slaughter animals on foot from the North to Southern markets in the main tsetse belt. However, there is no doubt that progress in disease control surpasses that made in the other production phases (breeding, nutrition, management and marketing). Recently significant disruption to national disease research and vaccine production at the Vom Laboratory has been caused by the civil war making unavailable some of the better qualified technicians in this field. Parenthetically, a shortage of qualified personnel represents a problem in all phases of the livestock assistance program in Northern Nigeria. It is also noteworthy (due to precedents set by the Colonial British) that the overall government policy of livestock development is predominantly veterinarian directed/orientated.

The total value of all livestock and livestock products in Northern Nigeria amounts to about \$200,000,000 or between 12 and 15 percent of Agricultural output. Perhaps the true importance of the livestock industry relates to supplying scarce animal protein, principally milk, to the North's rural population, and meat to the towns and villages throughout Nigeria; but especially those within the main fly belt of the south. The Nation's annual per capital consumption of red meat is estimated at less than 25 pounds, with beef accounting for the largest percentage. Poultry also contributes importantly to total protein supplies providing the meat and eggs of both domestic and wild species (e.g., guinea fowl). Animal protein supplies are augmented by a considerable fish catch and even more significant is the use of "the fifth quarter" from animal slaughter (all offals and by-products, not excluding hides and skins) as human food.

About 750,000 head of cattle are processed in Nigeria annually, in addition to small stock (sheep, goats and pigs), with the main producing area located in the north and the major mass consuming markets situated in the south. It naturally follows that livestock marketing is characterized by extreme distances between production and consuming areas, lack of adequate transportation, and an extremely complex system of intermediate transactions between the producer and final consumers. Note must be made of the fact that the demand for meat (beef) has long since outstripped the productive capacity of Nigeria's tradition-bound livestock industry, and today upwards of 35 percent of all slaughter cattle originate outside the country (principally Niger and Chad).

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The traditional marketing infrastructure, largely through the movement of cattle on foot, maintains a steady supply of cattle to the mass markets. The biggest problem relating to such trade is the value that is lost during the trek due to death and/or weight loss (estimated at 10 to 25 percent). Since scales are not employed at any point in the marketing chain from producer to consumer, the traders and butchers would appear to have an appreciable advantage. Essentially, all efforts to produce a heavier animal at an earlier age are largely neglected in the traditional marketing system. It is somewhat of a paradox that the mass market demands the kind of meat presently available which gives a good "chew" even when minced or stewed. While the primitive slaughter slabs utilized and general unsanitary meat handling practices of the hot meat trade leaves much to be desired, prices are within reach of a surprisingly large proportion of the population. A small but growing urban elite, made up of expatriates and upper class Nigerians, does exist in all major towns and cities of Nigeria, and is willing and able to pay higher prices for better quality beef. Attempts to develop this market have led to the construction of five modern abattoirs in Northern Nigeria with the idea of canning and/or shipping chilled beef instead of live cattle. Unfortunately, a railway system incapable of moving a steady supply of live cattle is even more handicapped when trying to transport chilled beef, and this, plus an overly optimistic estimate of the absorptive capacity of the urban elite trade, have left the marketing of livestock and meat appreciably unchanged. In fact the government has had to impose a 67 percent ad valorem duty on the import of meat to protect the domestic quality meat trade.

The livestock program of Northern Nigeria's six-year development plan (1962-1968) was a broad based approach designed to correct or remove the more serious deterrents to progress. USAID undertook to give technical and financial support under this project in range management (including stock water development) beef cattle breeding and ranch management, cattle fattening and marketing, meat processing and marketing, vaccine production, poultry development, and in establishing a livestock services training center (LSTC) at Kaduna. Apart from these USAID supported efforts, the Ministry of Agriculture and Forest Resources also has activities, in some cases assisted under other USAID projects, in tsetse fly eradication, hides and skins processing, sheep and goat improvement breeding of milk strains of cattle, milk marketing, provincial cattle markets, stock routes, cattle raiiling facilities, provincial abattoirs, veterinary clinics and treatment centers and the collection of livestock statistics. The Republic of West Germany is assisting in the development of an investigation center in cattle fattening and meat processing and have also produced a comprehensive two-volume report on the overall cattle industry. FAO has provided technical assistance in milk marketing schemes and in the processing of hides and skins.

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The USAID activities under this project are mainly those in which the USA has developed modern technologies and in which the Nigerian government requested assistance. Increased and improved production in the livestock and poultry industries are essential to overall economic development in Nigeria. With a growing industrial sector, an increasing degree of literacy among the people, expectations of higher living standards, and rising demand for livestock and poultry products, Nigeria can ill afford to increase the imports of these products to meet her growing needs. Although primitive production, marketing and processing practices have relegated the benefits to the nation at a rather low level, and meaningful change is decidedly a long term task, there is no realistic alternative to developing national sources of beef, eggs, and poultry meat. In the final analysis, economically viable livestock and poultry industries in the private sector of the economy must be considered as components of overall economic development, in which the purchasing power of the consuming public must increase in order that modern production, processing and marketing costs can be met without substantial government subsidies. In this view, the present crisis in the country has recently made for one of the greatest constraints to the development of Northern Nigeria's livestock industry, and especially so when considering its manifold effect upon governmental finances, deteriorating transport infrastructure, and general economic stagnation. Among other underlying imponderables can be mentioned population pressure in general and exactly how best to cope with the present nomadic herders in terms of their place in a more efficient, modern livestock industry.

It is completely unrealistic to expect that this USAID project will create immediate and widespread change at the private sector level of the livestock industry. The best that can be hoped for is to demonstrate under government auspices the economic worth of applicable practices and to train Nigerians to carry on to eventual consummation. That is, the present and immediate future must be relegated to establishing a base for development, with less than full assurance that complete modernization of the industry will ever be effected.

### 3. Strategy

Keeping in mind that a goodly measure of Northern Nigeria's range lands can economically yield their produce only under some type of seasonal movement of livestock and that many farm holdings are too small to support the keeping of appreciable numbers of large animals, one must conclude that the settling of all nomads and the full integration of cropping and livestock raising is not immediately feasible. Without great monetary outlays in fencing, and other facilities, large numbers of livestock cannot be kept in many areas during the period of growing crops. On the other hand, ranges are well suited (assuming that appropriate practices are followed) to reproduction and growth of animals destined for slaughter.

Assistance is now being given in cattle fattening and marketing to the recently established Livestock and Meat Authority for several reasons. Firstly, the authority covers all of the six Northern States, which facilitates working across state lines. Secondly, since 10 to 15 percent of the weight of cattle being trailed to market is lost in transit, improvement in this phase of livestock production offers the possibility of extremely high returns on invested efforts. Thirdly, there is no alternative to developing the livestock industry except along the lines of turning out higher quality produce that requires appreciable economic investments. Ground work in fattening, processing and marketing is essential to establishing outlets for these commodities, and in turn awakening consumer demand for such products.

Poultry were early recognized as one of the more efficient means of converting available feed grains into high quality animal protein. Thus, because of the ready acceptability of poultry products to the general populace, the high reproductive rate and short generation interval of the species, and relatively low capital inputs required to commence poultry production, poultry development was judged to offer considerable promise in terms of bridging the local animal protein gap. Prior to USAID assistance there existed a considerable unsatisfied demand for poultry products, which this project proposed to fill. Hence, the establishment of poultry production hatching centers to supply chicks to private producers. Two such centers have been made fully functional (at Jos and Kaduna) and a third (at Ilorin) is in the contractual stage. When this third unit is operational, the capacity will exist in the Northern states to meet the increasing demand for baby chicks (500,000 annually).

The Federal Department of Veterinary Research Laboratory at Vom has the responsibility for supplying most of the vaccines used by the country's Veterinary services, as well as disease research and diagnostic services. The 1968 production of vaccines totaled:

a.	Rinderpest (cattle)	-	4,083,200	doses
b.	New castle (poultry)	-	8,873,100	"
c.	Fowl pox (poultry)	-	4,267,350	"
d.	Rabies	-	30,733	"

Although an old established institution, the Vom laboratory was hard hit by staff losses and/or disruptions associated with the present country crisis. USAID's assistance in this activity undertakes to upgrade those aspects of the laboratory where serious bottlenecks are prevalent and/or where only a modest input could yield significant results.

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Thus, an AID Virologist is improving the quality of vaccines being produced, while a Pathologist is helping improve the diagnostic capability of the center's staff. Equipment service procedures, and general on-the-job training being conducted, should assure that after the limited assistance is terminated a viable institution, capable of providing needed vaccines and diagnostic service for the animal industry of all Nigeria, will have been established.

Among efforts attempted by USAID, that now warrant second thoughts, can be mentioned the introduction of exotic bloodlines to improve beef cattle and the establishment of government cattle fattening ranches. In the first case, existing cattle are well adapted to environmental conditions and local diseases and respond satisfactorily to improved conditions of nutrition and management. The low rate of imports indicate that they perform less well than indigenous animals. What is needed is selective improvement within the better local broods and this is now underway at several sites. In respect to cattle fattening, government ranches carved out of existing tribal grazing lands have been tried in any number of African countries with less than qualified success. This results from the resentment of local graziers, their refusal to sell stocker animals at low prices, and the general inefficiency of government operations. While grass fattening is normally cheaper than stall feeding, there are ample crop residues and agricultural byproducts in Northern Nigeria to more than finish all of the cattle that the quality market will presently absorb. The private sector, with nominal technical support from government, should eventually be able to effectively supply the fat cattle market.

Host country support to this USAID activity has been good at the upper level of both government and native authority, and the project itself will undertake to train cadres of technical staff. Government's concern is manifested through such activities as the Vom Laboratory, the setting up of grazing reserves, the establishment of the Livestock and Meat Authority, the Livestock Services Training center at Mando Road, and the Ahmadu Bello University.

USAID assistance to the livestock industry under this project attempts to take into account the cross relationships between the five basic phases of livestock production. Consequently programs in breeding, nutrition, disease control, management and marketing were supported. Certain facets were given greater assistance - management - because the problems were more pronounced. Current USAID support is concentrated in specific areas where it is now felt selected inputs can have the greatest impact. A shortage of trained personnel affects all aspects of Livestock Production and thus support continues to the Livestock Services Training center.

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Range management techniques still need to <sup>be</sup> refined under Nigerian conditions as is being done on the grazing schemes being supported. Without improved disease control through services rendered by the Vom Laboratory, the efforts of breeding, nutrition and management will be less meaningful than otherwise. Marketing and management assistance to the Livestock and Meat Authority should provide increased incentive to producers and stimulate output along with the adoption of other recommended practices. Likewise, breed improvement inputs through higher productivity.

Between sectors the livestock project is intimately associated with the agricultural extension and production project (770), since much of the field work among livestock and poultry producers will be carried out by extension project personnel. Also four livestock advisor extension positions have recently been transferred to this project. Moreover, farm fattening of cattle will rely upon feedstuffs produced by settled agriculturist, along with such byproducts as oilcakes and molasses from industry. It is also noteworthy that the future agricultural leaders project (748) has sent 41 participants to the U. S. A. for degree training in animal husbandry and 39 for degree training in the field of veterinary medicine.

#### 4. Planned Targets, Results and Outputs

In general, the primary goal of this project is to increase both the quantity and quality of livestock and poultry products in Northern Nigeria. By necessity, the first step must be infrastructural in nature; specifically the building of physical facilities, the training of Nigerians, and the initiation of programs designed to yield needed information and practices upon which the modernization of livestock and poultry industries must be based. Thus, it is noteworthy that this project does not to any appreciable extent include carrying over to the private sector. Rather, it is expected that the regular agricultural extension program will handle this vital phase of livestock and poultry development.

The project was initiated at the beginning of FY 1961 and has a planned phaseout date of FY 1971. The following targets, results and outputs are expected to be achieved during the scheduled life of the project under the subactivity heading and sponsorship indicated.

##### a. Poultry Industry Development - The Livestock and Meat Authority

The first step in this activity is the establishment of strategically located poultry production/hatching centers (Kaduna, Jos and Ilorin) with a combined capacity of one-half million baby chicks yearly. The Kaduna and Jos units are already functional and turning out about 100,000 chicks each on an annual basis, but the Ilorin unit is only at the contractual stage.

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Both operational units are behind in filling orders for chicks, as a result of limited funds caused by the political crisis in the country. Prior to the present project activity, a small hatchery near Jos was turning out 15,000 chicks annually for distribution throughout the entire Northern Region of Nigeria. The Agricultural Extension Services of the various states handle chick distribution and supervisory followup to the private sector, and as such is outside the responsibility of this project.

b. Beef Cattle Breeding and Ranch Improvement - ILM, North-Eastern State

The base for this activity is the establishment of a 20,000 acre cattle breeding ranch (near Maiduguri in Borno province of the North-Eastern State) with a capacity of 1,000 breeding cows, and having the intent of selective improvement and eventual distribution of improved bulls to private sector producers. Excluding minor exceptions (i.e., additional stock water and silo development), all physical facilities have been completed and the ranch is now partially stocked with some 500 cows and young stock. It is to be noted that selective cattle improvement is a slow process, due to the low reproductive rate and long generation interval common to the species, and the meaningful distribution of genetically superior bulls cannot be expected to start until well after USAID's planned phase out date. However, excellent results are being demonstrated in the breeding herd as regards improvement in both production and reproduction.

c. Cattle Fattening and Marketing - The Livestock and Meat Authority

The base for this activity is a 5000 - acre finishing ranch at Ranchik in the North-Central State with a throughput capacity of 5000 cattle annually. As originally planned, the ranch was to purchase young steers at two to three years of age, grow out and partially fatten on grass and finish up with a period in the feedlot on a concentrate ration including ranch produced grains. Some 200 acres of a planned 500 acres of cropland have been developed along with needed fencing, working corrals and general basic facilities. The ranch is now handling 500 to 600 head of cattle annually. Indications are that the period of concentrate feeding might better be effected in or near Kaduna to keep down costs, circumvent persistent transport problems and be more accessible as a demonstration. However, the major immediate problem hinges upon the inability of the Kaduna market to absorb larger numbers of such cattle at a price commensurate with production costs, and poor rail service which precludes the shipment of chilled beef to the unfilled market in Lagos. The two latter problems are closely allied with the nation's civil war. Due to reservations concerning concentrate feeding at the ranch, and the fact that related facilities have not been completed, further study is required to ascertain the best course of action in this instance.

4. Abattoir Development - The Livestock and Meat Authority

The establishment of a modern abattoir in Kaduna with a capacity of 20 head of cattle per hour, including chilling facilities was the first step of this subactivity. The unit was designed as a demonstration and training facility that would stress proper flaying, sanitation and inspection, and serve as a base for collecting slaughter data leading to the formulation of meaningful carcass grades of beef. It was also envisaged that the abattoir would process fat cattle from the *hinchok hinch* and service private butchers in the city of Kaduna. Today, some 25 head of cattle plus a few sheep and goats are being slaughtered daily. The bulk of the throughput is for local butchers, and plans are underway to close municipal slaughter slabs and give the abattoir a monopoly for all city slaughter.

e. Meat Processing and Marketing - The Livestock and Meat Authority

The establishment of a combination cold and hot meat outlet in Kaduna designed to demonstrate sanitary handling of hot meat, the use of scales and differential pricing of the carcass cuts for beef of improved quality was the primary target of this activity. The nine meat stalls of the hot meat complex are assigned to private retailers, while the cold store outlet is being operated by the Livestock and Meat Authority. Gross revenue from the cold store or high quality market was running at some 1224,000 (367,200) on an annual basis, but with the advent of the civil war sales have dropped by 40 percent.

f. Range Management - ILMR's of the Various States

The objective of this phase of the Livestock Project was the development of six range management pilot demonstrations (sited in the North-Western, North-Central, North-Eastern and Benue-Plateau States) with a total acreage of 1,300,000, and animal unit carrying capacity of 130,000. This activity is to demonstrate the economic worth of proper management and utilization of natural range resources, along with improved animal husbandry practices, and better animal health, leading to overall advances in productive and reproductive efficiency of the herds involved. Management practices on these reserves include limiting the number of animals allowed to graze a given site; the control of animals in a rotational-deferred grazing system, the maintenance of trails, stock water dams, and other facilities; the prevention of grass fires; the provision of supplemental protein feeds and minerals, and veterinary services; herd management; the collection and marketing of surplus milk; the collection of grazing fees; etc. It is noteworthy that this large scale undertaking, complicated by the background and nature of the human element (ultra-conservative nomads) concerned, and time will be required before objective measures on improvement of range and animal performance will be possible.

8. Livestock Services Training Center - Interim Common Services Agency

The primary target of this activity was the development of a livestock services training center (at Mando Road near Kaduna) to provide sub-professional field technicians in direct support of modernizing the livestock and poultry industry. The center offers a two-year sub-college level curriculum for training thirty animal husbandry assistants and ten range management assistants annually. The animal husbandry section has already graduated a total of 100 students, or 25 to 30 each year. The range management curriculum was established in 1966 and has graduated only one class of six trainees.

h. Veterinary Services Development - Federal Department of Veterinary Research

This activity provides special assistance in disease diagnosis and vaccine production to the Federal Department of Veterinary Research (FDVR) of the Federal Ministry of Agriculture at Vom. The Vom Laboratory has been involved in supplying both Nigeria and surrounding countries with vaccines for a number of years, especially that used in the regional rinderpest Control Program. It also has responsibility for disease research and special diagnostic work for the entire Federation. USAID's assistance to the installation is largely technical in nature and involves the services of a Veterinary Pathologist and Veterinary Virologist. The specific need for this assistance emanates from staff shortages related to the existing strife in the country. The results and outputs of this project activity can only be measured in terms of improved quality of vaccines, and more accurate disease diagnosis.

5. Course of Action

Four of the eight subactivities making up the project have already been essentially phased out. A project history and analysis report (U-520) covering the period 1 July 1960 to 31 March 1968, and submitted 3 August 1968, is an informative and appropriate reference in this instance. Although much of the following is history, a brief resume of the course of action to be followed in achieving the targets of each major subactivity follows:

a. Poultry Industry Development

This activity is being undertaken in cooperation with the Livestock and Meat Authority. AID has given financial and technical assistance in establishing two 3000 - hen poultry breeding and hatching units at Kaduna and Jos designed to increase the supply of chicks in Northern Nigeria. These units will also serve to demonstrate improved poultry production practices. A third center planned for Ilorin is yet to be build, although all specialized equipment is on site.

One AID poultry advisor is giving technical assistance to the Livestock and Meat Authority in operating these units. A second advisor is to be assigned to the Extension - Research Liaison Section (ERLS) of Ahmadu Bello University to assist with field poultry extension activities under project 770.

b. Beef Cattle Breeding and Ranch Management

In 10 years past each major nomadic tribal element probably retained relatively pure breeding lines of livestock. More recently, with relative peace and stability in the extensive range areas, greater competition for available lands and the introduction of cattle into farming zones, breeding management has become rather indiscriminate with actual deterioration of bloodlines. It is also significant that as the general level of nutrition and management rises past a certain point, the existing breeds will also need to be improved genetically in keeping with an improved environment. This sub-activity, the responsibility of the Ministry of Agriculture and Natural Resources of the North-Eastern state, involves the establishment of a breeding ranch stocked with Wadara (Shuwa Arab) cattle and the selective improvement of the breed through the application of modern breeding principles. AID is providing equipment and part of the construction costs of a 20,000 - acre ranch, along with the part-time services of a technician.

c. Cattle Fattening and Marketing

Direct technical assistance has already been terminated on this activity, but it is planned that some further assistance will be given on a part-time basis when additional technicians are assigned to the Livestock and Meat Authority.

The primary purpose of this activity is to determine the economics of cattle fattening on a large scale commercial basis, using a 5,000 - acre ranch as project site. This ranch at Manchok in the North-Central State was established through AID financial assistance. Reference was made earlier in this report as regards the need to further study the overall direction of this undertaking.

d. Abattoir Development

Coming under the responsibility of the Livestock and Meat Authority, this activity is another area in which full-time technical assistance has been terminated. The Kaduna Abattoir serves as the activity center, and was originally established through AID financial assistance. Any additional AID input to the project will be on a part-time basis from an AID technician assigned to the IMA and will be largely related to the possible development of both slaughter cattle and carcass

grades, the sale of butcher cattle on the basis of weight instead of of by the head, and generally upgrading management.

e. Meat Processing and Marketing

This activity comes under the supervisory responsibility of the Livestock and Meat Authority and is closely allied with the above fattening ranch and the Kaduna abattoir. It too, was established through AID financial assistance, but no longer comes under direct technical assistance from AID. The primary purpose of the undertaking was to improve sanitation and promote the sale of high quality beef when properly cut, packaged and offered for sale on a differential price basis. The exodus of many urban elites from Kaduna in connection with the establishment of the six Northern States, drastically reduced the absorptive capacity of the high quality meat trade in Kaduna. Present indications are that cold stores in either Jos or Zaria would yield a x greater revenue than that of the Kaduna outlet. The AID direct-hire technician assigned to the LMA will attempt to improve the operation.

f. Range Management

This activity is being implemented through a PASA with the Bureau of Land Management. Originally in five demonstration areas in the North-Western, North-Central, Benue-Plateau and North-Eastern States were being assisted. However, AID assistance through the BLM/PASA has phased out in the North-Eastern and Benue-Plateau State, with only one advisor serving the North-Central and North-Western State, remaining. A sixth demonstration site in the North-Eastern State is being developed with the assistance of a Direct Hire AID technician. The various State Ministries of Agriculture and Land and Natural Resources have project responsibility. All of these demonstrations have been established to show range management and land conservation practices which will help to prevent continuing economic losses through range deterioration.

Since passage of a grazing reserve law in 1965 by the Government of Northern Nigeria, considerable acreage has been proposed for reservation. These proposals are in various stages and have evolved as either G.O.M. or Native Authority reserves, depending upon final procedures to be followed in gazetting. With over 600 proposals in effect, involving over 1500 square miles, it is obvious that range management has the potential of a far reaching effect on land management programs in Northern Nigeria.

Range Management Project Advisors work with grazing committees composed of nomadic Fulani Chiefs, Native Authority Officials and State L.M.A. Officials in pursuit of project objectives.

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g. Livestock Services Training Center (LSTC)

This School at Mando Road, near Kaduna, originally under the ICSA is now a branch of the Ahmadu Bello University. AID is providing one range management instructor (BEM/PASA) and one direct hire animal husbandry instructor. It has also given financial assistance in providing expanded dormitory, classroom and library facilities. The center offers a two-year course of training to prospective veterinary, livestock and range management assistants.

h. Veterinary Services Development

The Vom Laboratory, coming under the Federal Ministry of Agriculture and Natural Resources, has served for many years as the principal veterinary research center, and the source of vaccines and disease diagnostic services throughout Nigeria. Limited AID assistance has been given in the past with current support including the services of a direct hire veterinary pathologist and a USPHS/PASA virologist.

The Vom center will shortly take over operation of the five small diagnostic laboratories in the Northern States and will undertake to establish similar diagnostic units in each of the remaining states of the Federation. Since this will include financial, training and supervisory support, it is manifest that Vom's influence and impact will be greatly multiplied. Meanwhile, at Vom itself, efforts continue respecting correcting and improving plant and facilities, using in many cases locally available materials.