

AID (198-1 (7-71) (PAGE SHEET)
NONCAPITAL PROJECT PAPER (PROP)

I. PROJECT IDENTIFICATION

1. PROJECT TITLE
NATIONAL RANGE AND RANCH DEVELOPMENT

2. PROJECT NO. (M.O. 1095.2)
615-11-190-157

3. RECIPIENT (specify)
 COUNTRY **Kenya**
 REGIONAL INTERREGIONAL

4. LIFE OF PROJECT
 BEGINS FY **73**
 ENDS FY **82**

5. SUBMISSION **Apr. 4, 1972**
 ORIGINAL
 REV. NO. _____ DATE _____
 CONTR./PASA NO. _____

APPENDIX ATTACHED **20p.**
 YES NO

A.I.D. Reference Center, Room 1656 NS

II. FUNDING (\$000) AND MAN MONTHS (MM) REQUIREMENTS

A. FUNDING BY FISCAL YEAR	B. TOTAL \$	C. PERSONNEL		D. PARTICIPANTS		E. COMMODITIES \$	F. OTHER COSTS \$	G. PASA/CONTR.		H. LOCAL EXCHANGE CURRENCY RATE: \$ US 117.15h. (U.S. OWNED)		
		(1) \$	(2) MM	(1) \$	(2) MM			(1) \$	(2) MM	(1) U.S. GRANT LOAN	(2) COOP COUNTRY (A) JOINT (B) BUDGET	
1. PRIOR THRU ACTUAL FY												
2. OPRN FY 73	570	522	156	-0-	-0-	18	30	69/416	24/120			
3. BUDGET FY 74	437	395	108	80	120	-0-	22	57/247	24/72			
4. BUDGET +1 FY 75	533	437	108	48	72	26	22	82/311	24/72			
5. BUDGET +2 FY 76	446	341	108	82	120	1	22	57/253	24/72			
6. BUDGET +3 FY 77	528	453	108	51	72	2	22	85/323	24/72			
7. ALL SUBQ. FY	2,109	1,865	504	207	288	-0-	117	338/1358	125/384			
8. GRAND TOTAL	4,703	3,953	1092	468	672	47	235	688/2,818	245/752			

9. OTHER DONOR CONTRIBUTIONS

(A) NAME OF DONOR	(B) KIND OF GOODS/SERVICES	(C) AMOUNT

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER
Reed Phillips/Dickson/Homes

2. CLEARANCE OFFICER
Charles A. Jones

TITLE **TDY Consultant/Asst. Prog. Officer** DATE **1 Apr 7 1972**

TITLE **Acting Director** DATE **April 17, 1972**

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

2. CLEARANCES

BUR/OFF.	SIGNATURE	DATE	BUR/OFF	SIGNATURE	DATE

3. APPROVAL AAs OR OFFICE DIRECTORS

SIGNATURE _____ DATE _____

TITLE _____

4. APPROVAL A/AID (See M.O. 1025.1 VI C)

SIGNATURE _____ DATE _____

ADMINISTRATOR, AGENCY FOR INTERNATIONAL DEVELOPMENT

A. PROJECT GOAL

1. GOAL STATEMENT

The overall goal of the National Range and Ranch Development Project is to increase livestock production in Kenya sufficiently to meet growing domestic demand at reasonable prices and to earn foreign exchange through exports of livestock and livestock products. Sound planning, implementation, and management of a comprehensive national range and ranch improvement program will be indispensable to achieving this goal. Relief from chronic and often acute water and forage shortages will allow substantial increases in the carrying capacity of major range areas. Resulting increases in livestock production will contribute to Kenya's overall economic development. Implications of the project for various segments of the Kenyan economy are summarized as follows:

- a. Pastoralists and ranchers:
Improved means of gaining a livelihood, particularly through better integration with national livestock marketing systems.
- b. Farmers in high potential areas:
Increased numbers of better quality stocker and feeder animals from range areas for further growth and fattening on higher quality pastures in these areas or on locally produced maize, wheat and other crops or crop by-products.
- c. Consumers:
More animal protein at reasonable prices.
- d. Labor:
Expanded employment opportunities on ranges, ranches, feedlots, slaughterhouses, and service industries.
- e. National Economy:
Wide-ranging impacts including increased commercialization of a major economic sector, increased domestic product, and increased foreign exchange earning potential.

2. MEASUREMENT OF GOAL ACHIEVEMENTS

Key indicators of goal achievement will be the extent to which range lands are brought under improved management regimes and the annual rate of increase in animal marketings. By the end of the project, over 30,000,000 acres of range land will be under the control of one type or another of improved range and water management system, and livestock marketings will be increasing at a compound rate of 5% per year.

3. ASSUMPTIONS OF GOAL ACHIEVEMENT

- a. Agriculture, and particularly livestock and wildlife production, will continue to be given priority for development by the Kenya Government.

- b. Political stability in Kenya.
- c. Increasingly strong domestic and export demand for beef.
- d. Continued support by IBRD and other donor agencies through loans, grants, and technical assistance for livestock and range development in Kenya.
- e. A satisfactory response on the part of pastoral people to increased opportunities to produce and sell livestock, and to conform to improved grazing and livestock management practices.
- f. Ground and surface water available in sufficient quantities and of satisfactory quality.

B. PROJECT PURPOSE

1. STATEMENT OF THE PURPOSE

The Project Purpose will be to diminish to the extent possible those environmental, organizational and managerial problems which presently restrain increases in livestock production in Kenya. Achieving this purpose will involve the following:

- a. More fully developing available ground and surface water resources.
- b. Designing and instituting rational range management regimes which will simultaneously support larger animal populations and conserve range lands as an important national resource.
- c. Training and placement of professional range management officers and other technicians and administrators essential to successful long-term management of a range and ranch development program.

2. CONDITIONS EXPECTED AT END OF PROJECT (8 to 10 years)

Conditions expected at the end of the Project period include:

- (a) Sufficient water supply in place to provide for substantially increased grazing and livestock production, and a dependable output of rangeland products for consuming markets.
- (b) Range management systems established and being practised that assure continued range development benefits.
- (c) Improved livestock health, animal quality and improved reproduction rates.
- (d) Improved livestock flow, via new transportation systems, to purchasing centers at greater volume and more stable rates.

- (e) Markedly reduced need for pastoralists to follow the nomadic way of life.
- (f) Increased cash income to the Kenya economy, particularly the livestock people, enabling them to more equitably share in the growing economy, and with more of their children at schools.
- (g) An increase and stabilizing of erratic meat supplies to Kenya's population at higher quality levels.
- (h) Trained range management personnel posted in all Provincial and District offices in range areas, with adequate staff and equipment to assure that planned rangeland management is carried out. Also trained Agricultural Economists to carry on agricultural economic planning.
- (i) Long-term and short-term credit available to livestock producers and ranchers, and being used successfully,
- (j) Many new local grazing groups formed, recognized legally, and functioning in the collection and disbursal of funds for payment of necessary maintenance and operation costs of range/water improvements.
- (k) In places where camel production has been practised because of inadequate water for cattle, fewer camel numbers and greater cattle numbers.
- (l) Age, structure and quality of cattle herds will change: more cattle will be produced and sold at younger age and increased weights.

3. BASIC ASSUMPTIONS

- (a) The GOK will supply necessary staff assistance and trainee-counterparts to technical assistance teams as well as meeting requirements for scientific equipment, supplies, field housing, transportation and heavy equipment.
- (b) Experience and favorable results realized to date with the North East Province Pilot Range/Water Development effort (over an area of 1,745,000 acres with 46,000 cattle) will be reasonably duplicated in the other areas of the national project. These include:
 - 1. Formerly unknown underground water supplies can be found in some areas and tapped by wells at 300 to 400 ft. depths to produce 1200 to 1800 gph. usable water.
 - 2. Considerable potential exists in the development of surface water reservoirs, designed and located so as to furnish from run-off adequate water supplies for livestock from rainy season to rainy season, even in low rainfall periods.

3. Trained range officers capable of implementing and administering relatively complicated non-continuous grazing schemes must be posted in all major range areas. (15 trained range officers are now posted in N.E. Province).
4. Pastoralists recognize the benefits of range water development and are willing to follow grazing schemes as established - (3 grazing blocks are now implemented and organized in NE).
5. On-the-ground supervision of actual construction, which at times in the past has been a bottleneck to more rapid building of reservoirs and boreholes, is essential to efficient program progress and operation.
6. Much range forage traditionally underutilized because of lack of water will come into improved utilization with stable water supplies provided within those areas.
7. Proper location of water sources can reduce the need for long trailing from pasture to water.

C. PROJECT OUTPUTS

1. OUTPUT INDICATORS

- a. Detailed plans for range, ranch and water development in all range areas. These would include detailed planning for development and management of grazing and water resources on at least 20 million acres and approximately 250 ranches encompassing another 10 million acres. These ranches will be developed and placed in operation during the project period. In addition, there will be organized grazing around 150 grazing groups, cooperatives, and grazing associations.
- b. Approximately 400 boreholes drilled, and reservoirs, pans and pipelines installed as required to support the integrated range and water management schemes to be developed under the project.
- c. Approximately 5,000 miles of access roads and tracks developed throughout the range/ranch areas.
- d. Six Agricultural Economists, 12 Range Management Specialists and 2 Hydrologists trained to the Master's level and posted in responsible Ministry of Agriculture positions related specifically to range and ranch development programs.

2. BASIC ASSUMPTIONS ABOUT PRODUCTION OF OUTPUTS

- a. The economic policies of GOK will continue to favor a national range/water development project and to support private sector initiatives.

- b. Necessary bilateral and/or multi-lateral capital financing for infrastructure development and credit expansion will be available on a timely basis.
- c. Necessary surveys and adjudication to allow land to be made available for formation and financing of group and other types of ranches will be accomplished by the GOK.

D. INPUTS

1. USAID TECHNICAL ASSISTANCE

a) Three 2-man teams, each consisting of an Agricultural Engineer and a Range Planner, for technical assistance and expertise in range/ranch grazing and water development. Each team may be responsible for the technical work in a single Province or, where their services can be better utilized, more than one technician or team may work on the problems in a particular Province.

The Agricultural Engineers will provide expertise and advice to the Ministry of Agriculture on range water development engineering planning, implementation and maintenance in the three major range areas. These Engineers will be primarily responsible for the overall engineering and water development planning activities. They also will advise, train, and supervise the engineering planning activities of counterpart-trainees. They will assist in implementing and maintaining the plans as required. Their activities will be very closely coordinated with those of the Range Planners. The Engineers will be concerned with assuring that Project plans are implemented in each Province in a proper and timely manner, and that the schedule of water development and other engineering aspects of the Project proceed expeditiously. They will advise, train, and supervise the counterpart-trainees who will be working on this phase of development. They also will assist in planning activities.

The Range Planners will provide advice and expert assistance to the Range Management Division on range management surveys, planning, and implementation. They will work with the GOK Range Officers in implementing completed range development and management plans. These responsibilities may be varied as the planning and implementing situation changes during the project operations. The Range Planners also will advise, train and supervise the counterpart trainees who will be working on this phase of the Project.

b) One Hydrogeologist will be required for the first full year or two of the Project to complete the technical work now underway which is essential to planning the water resource development element of the project.

c) Two Agricultural Economists, with expertise in livestock economics, will provide specialized services and training within the Planning Division of the Ministry of Agriculture.

d). One Project Leader for overall direction and coordination of the USAID team.

2. COMMODITIES

Certain support items for the Technical Assistance team will be provided by USAID. These include such items as vehicles (with camper facilities) for the Engineers and Range Planners and one for the Project leader, certain field communication equipment, scientific and surveying equipment, and photographic equipment.

3. PARTICIPANTS

- a). Agricultural Engineers: Six participants with background in both range management and engineering will be sent to the U.S. for B.Sc. degrees with emphasis on soil and water conservation engineering.
- b). Hydrologists: Two candidates with engineering or geology degrees will be sent for further academic training in the U.S. in both surface and ground water hydrology.
- c). Range Officers: Twelve range officers (of the 70 to be posted as part of the overall program), with degrees in range management from Egerton College will receive advanced instruction in range management techniques and extension methods at American Universities.
- d). Agricultural Economists: Eight participants for M.S. degree at U.S. Universities.

2. GOK INPUTS

a) Personnel Services

The Government of Kenya is currently providing Range Assistants for various aspects in range management planning and implementation and a heavy equipment crew for road and pan construction and borehole drilling. The GOK will provide adequate staff from the Range Management and Water Development Division at the national, provincial and district levels to enable the National Range Livestock Development Project to achieve its stated outputs through the life of the project.

The GOK also will provide continuously three engineering-trainees and three range planner-trainees to work with the USAID Agricultural Engineers and Range Planners during the life of the project.

b) Commodities and Other Costs

- 1. Heavy equipment (including support equipment) for road and pan construction and for maintenance of developed facilities as planned. The GOK will contract or otherwise undertake the planned borehole drilling. They also will provide the necessary troughs, pumps, tanks, etc., needed to equip boreholes and large stock ponds.

2. That portion of safari equipment and supplies needed by the technical team to be purchased in Kenya.
 3. Necessary vehicles, housing, support equipment medical facilities, office/secretarial services for the range and water development personnel.
 4. Office space, secretarial services, and office supplies for AID technicians in Nairobi and necessary office supplies for field operations.
 5. Transport when public travel is used for official duty.
 6. Travelling and subsistence expenses.
 7. The necessary security for U.S. Personnel and equipment.
 8. Vehicles to U.S. AID Team, adequate to meet requirements of the work until U.S. financed vehicles arrive.
 9. Per diem for U.S. personnel when on official travel at GOK rates for comparable grades.
 10. The occasional necessary services of other government agencies, as requested by USAID team.
 11. Mobile drilling equipment (2) of sufficient size for exploratory drilling of reservoir sites and other uses.
 12. Drivers, draftsmen, cooks, surveyors, and other support staff to the AID team necessary to carry out their field responsibilities.
 13. Operation, maintenance and repairs of all vehicles, heavy equipment and others.
 14. Necessary training equipment, aids and supplies and classroom facilities for trainee instruction.
- c). The Ministry of Agriculture is actively exploring with the Ministry of Finance and Planning means by which the base salaries and housing allowances for the U.S. team might be paid at rates comparable on the GOK Civil Service Scale.

3. OTHER DONORS

A most important factor in Kenya's livestock and range development are loans advanced by outside agencies and other Governments. Financing of Kenya's Ranching Development Program comes chiefly from the World Bank (IBRD); its affiliate, International Development Association (IDA); the Swedish International Development Association (S.I.D.A.); U.S. AID and from the GOK itself.

Financing under the SIDA/JDA KE 129 Project, which began in December 1968, provided approximately \$3.3 million. The Kenya Treasury allocated about \$2.0 million, for a total of \$5.8 million. This is available to Kenya's Agricultural Finance Corporation (AFC) for the ranch development program throughout Kenya. These funds are allocated for development (55%), working capital (36%), and for technical assistance (9%).

Development funds made available to AFC under KE-129 Project funding are allocated approximately as follows: Nearly 40% to 20 Group Ranches; another 40% to 45% to 20 Commercial Ranches; 15-17 percent to 10 Company Ranches; and 2% to 10 Individual Ranches.

I.D.A. and S.I.D.A. also make available funds for activities of several Departments and Divisions of the Ministry of Agriculture under the KE 129 program. In total, I.D.A. and S.I.D.A. provide approximately \$3.4 million under the KE 129 program for use by the Ministry of Agriculture and the GOK allocates another \$1.3 million, for a total of \$4.7 million of funds to KE 129 program activities other than to AFC. (See table below).

Funding of Ministry of Agriculture Divisions and A.F.C. for Range Development under KE-129 Projects from 1969 through 1972.

DIVISION	I.D.A. & S.I.D.A.	KENYA	TOTAL
	<u>1000 \$</u>	<u>1000 \$</u>	<u>1000 \$</u>
Livestock Marketing	1,080	720	1,792
Range Water Dev.	800	530	1,330
Range Management Div.	540	-	540
Veterinary Services	280	-	280
Contingencies	<u>720</u>	<u>-</u>	<u>1,045</u>
Total	3,420	1,250	4,670
A.F.C.	<u>3,780</u>	<u>2,000</u>	<u>5,780</u>
Grand Total	<u>7,100</u>	<u>3,250</u>	<u>10,450</u>

Under the financing agreement, the Kenya Treasury borrows from I.D.A. and S.I.D.A. on the usual "soft terms". A.F.C. then borrows from the Treasury at 3% interest repayable over 18 years (semi-annually) with a 5-year moratorium on principal. A.F.C. re-lends to ranches at 7.5% (payable annually) on 12-year terms with a 4-year moratorium on development funds. Working capital funds are operated with interest payable annually and principal repayments governed by cash flow. A.F.C. borrows from the Treasury for technical expenses and loan disbursements upon request.

The G.O.K. is presently negotiating with the International Bank for Reconstruction and Development and the Swedish International Development Agency for additional loan funds to develop the range areas as outlined in this PRCP.

The UNDP/FAO provides assistance primarily on animal science and ecological research, educational films, and range and water development surveys. This project was due to end on October 31, 1971, but the Governing Council approved a two-year extension. The extension includes furnishing 290 man-months of expert and consultant services, 24 months of fellowship awards, and increased equipment and sub-contracts. The total contribution by UNDP for the two-year extension will be more than \$916,000.

Under the project extension the UNDP/FAO is studying the relative production of wildlife vs. domestic livestock in terms of meat produced per acre, and the effect on habitat of wildlife vs. domestic animals. This study of food habits and preferences should help to determine how best to utilize available vegetation. On the range survey portion of the project, the primary effort is now focusing on the Kitui and Tana River Districts. Previous surveys have been completed on 31.6 million acres in parts of the range in 11 Districts. Since July 1968, the U.N. has provided thirteen fellowships for study in the U.S. and Australia on such subjects as Range Management, Livestock Improvement, Plant Physiology, Range Ecology, Wildlife Biology, etc..

4. BASIC ASSUMPTIONS (INPUTS)

- a. Ongoing negotiations between the GOK and IDA/SIDA for the Phase II Livestock Development Loan will be successful or, alternatively, that other means of external financing can be arranged.
- b. The GOK will continue to be able to devote development resources to the livestock sector at least at the rates specified in the 1969-74 Development Plan.

E. RATIONALE

Kenya covers an area of about 144 million acres and has a population of 11 million. There are marked extremes of temperature and rainfall distribution and intensity, but the climate and soil conditions are generally favorable for a very productive livestock industry. This is true even in the arid and semi-arid range areas, which include about four-fifths of Kenya's land area. Given appropriate development and sound resource management, the conditions are favorable for a substantial increase in production of Kenya's livestock and game animals. These excellent possibilities can provide the basis for important future overall economic and social development in Kenya. Developing the potentials in the range areas is the primary thrust of this PROP.

Kenya's revised Agricultural Development Plan gives emphasis to achieving increased agricultural production. Development and proper use of the livestock

and grazing resources is essential for increasing Kenya's food output to meet the rising domestic food needs, and to bolster the economy by increasing foreign exchange earnings.

The Ministry of Agriculture places high priorities to planning and implementing a national livestock and range development program. A pilot project, undertaken during the past two years with AID Technical Assistance (Project 615-11-190-100) and focused in one section of the Northeast Province, has achieved much success, and gives great promise for extending the program to all of the arid and semi-arid grazing areas of Kenya.

Total range areas occupy 122 million acres, or more than 80 per cent of Kenya's land area. Of this, 7.5 million acres (3.4%) is in game parks and forest reserves. An additional 10 to 15 per cent is being cultivated by subsistence farmers. The entire grazing area is peopled by approximately 1.5 million, most of whom are pastoralists or semi-pastoralists subsisting at the fringe of the commercial economy.

Only a relatively small area of the range land has been developed by commercial ranchers. The greater proportion of all the grazing lands has lagged far behind in technical and social advances. Mismanagement, overgrazing, and lack of water development and roads have led to range deterioration through bush encroachment and over-stocking.

The combination of slow maturing, poor quality animals, high mortality rates, poor animal husbandry and range management practices have combined to produce low quality, quantity and value of production. In this situation the GOK has recognized the urgent need for range and water development and general improvement in animal husbandry, range management and marketing.

The game potential of the range areas must be stressed. This important resource can be developed to become a major earner for Kenya, possibly with a potential greater than for most cash crops. Range habitats for wildlife are now deteriorating or being destroyed by poor grazing practices and lack of water. Unless the ranges are improved it is inevitable that much of the wildlife will eventually disappear, to the great disadvantage of Kenya and East Africa. Proper range and water development and effective management of the ranges will help assure not only maintaining, but increasing the number of game for viewing, hunting and cropping.

The range areas' available options for utilization are extremely limited. Development means range and water improvement, which in turn, means increasing livestock outputs. Such development will not only increase cash incomes of the pastoral and ranch people but also will improve nutritional levels because the food supply for the range people comes largely from their livestock. As a literal "bonus", the building of access roads and "tracks" for development and range management will be of considerable benefit to communication and social development.

The water-deficient conditions in range areas of Kenya also importantly affect human living conditions there. Perennial water shortage is a persistently difficult problem for people in the arid and semi-arid regions targeted by this project.

The meat sector of Kenya's agricultural economy offers great opportunity for expansion if only to keep up with burgeoning domestic demand. In fact, livestock development is required to meet a broad spectrum of Kenya's needs and demands, ranging from famine relief to the earning of more foreign exchange. Range and livestock development can reduce or eliminate the present requirement for periodic famine relief operations in West Pokot, Baringo, Liakipia (Mukogodo) Isiolo, Machakos, Kitui and parts of Tana River districts. It would reduce chronic food shortages in Turkana, part of Baringo and Marsabit (El Molo) where traditional management systems do not provide for drought years when milking animals (which provide the basic diet there) go dry.

The largest increases in domestic demand are expected for the following foods:

	Projected % Increases
	<u>1969 - 1975</u>
Eggs	49.5
Poultry	47.4
Lamb and Mutton	41.3
Beef and veal	41.3
Butter	43.3
Sugar	43.3
For comparison:	
Population Growth	22.8 (3.5% per year)

The present limited development of commercial beef production methods not only results in low offtake or output, but in poor distribution. Areas where relatively much meat is produced per capita are the areas where meat consumption is relatively higher, while in densely populated areas such as Central Province, the meat availability per person per year has been estimated at only about 9 kgs. In pastoral areas this availability has been estimated as 25 kgs. To provide greater amounts of protein to the densely populated rural areas large quantities of beef must be moved from the surplus areas, and thus the development of the domestic marketing system of livestock and meat is important.

It also is important that pastoralists overcome their exclusive dependence on cattle for their diet. In Narok, for example, the average land availability per family of 6 is only about 214 acres with an average stocking capacity of 15 acres per stock unit. That allows an average of only 14 animal units per family, which is near the subsistence level.

Because people like the Masai largely remain so dependent on their cattle, the group-type of ranch is being formed where land and financing transactions can be arranged on a large scale, as a group, with each family retaining individual ownership of its cattle and flocks. This is possible under the Land Adjudication Act and the Land (Group Representatives) Act of 1968 which can be applied to the pastoral trustland areas such as Masailand, Samburu, the South and Western quarter of Eastern Province. Trust land is land held

traditionally by the local people. The program of Group ranch adjudication will be nearing completion in the two Masai districts by the end of 1972.

In the State-owned range lands (those considered to be basically unoccupied by local people) such as in East Kitui and Taita, the Service Cooperative form of organization can execute the formal lease-hold tenure and operate the ranch, but the members can own their herds individually.

Most surveys indicate the people's readiness to change to commercial ways of cattle production. The experience with the Masai Group ranches in Kajiado, during the initial phase of the Livestock Development Project, shows their acceptance of dipping programs, of formal land tenure, of the need to improve their herds through the purchase of better bulls, of planned sales of steers and, more recently, one Masai Group agreed to cull some 200 unproductive cows. It is through the extension work of the Range Management Division that new ranch organizations and better methods of range use and range livestock production can be achieved throughout Kenya. Through the formation of legal forms of ranch organizations, improved management and the use of credit finance can be applied. In these circumstances it is possible to make great strides in the development and improvement of the grazing and water resources.

Preliminary plans for the next Phase of the Livestock Development Project call for development of about 254 ranches (not including commercial ventures) throughout the range areas covering about 9,500,000 acres, capable of holding about 580,780 stock units and requiring some \$8.4 million for water development.

A brief description of the projected development plans for the individual Provinces is as follows:

North East Province

The North-Eastern Province, with a surface area of about 31.3 million acres, comprises 21 percent of Kenya's total area. It is mostly semi-desert country suitable only for grazing. The southern extremity of the Province receives nearly 25 inches of annual rainfall, but the bulk of the Province is arid to semi-arid, with annual rainfall of only 10 to 15 inches. Normal weather in the Province provides two growing seasons and two dry seasons annually. Each wet-dry weather cycle is normally sufficient to permit forage plants to develop and mature, although almost a total loss of one crop and even occasionally of both crops may be experienced through periodic drought, especially in small local areas. Narrow-front thunder showers do occur occasionally, but provide rapid runoff which must be captured to avoid loss.

The topography is mostly flat, with elevation ranging from less than 600 ft. to about 1,600 ft. Daily maximum temperatures are usually in the high 80's or low 90's. The 246,000 people living in the Province (pastoralists, mostly of Somali origin) depend almost entirely on livestock for their livelihood. The province presently contains approximately 600,000 cattle (zebu tupe), 176,000 camels, 163,000 sheep and goats, and 135,000 donkeys. Range water development in the North East Province is projected to include, in addition to those projects already constructed under the Pilot Project, 378 reservoirs, both deep and shallow ones) and 60 boreholes.

RIFT VALLEY PROVINCE

About 69% of the Rift Valley Province is dry land, and 75% of the nine districts are classified as range areas. Turkana, Samburu, Liakipia, Kajiado and Narok Districts are entirely pastoral.

In the Rift Valley Province, the Project will include development of 10 individual ranches of about 2,000 acres each and stocked with about 230 head of cattle each. Also projected is a target of 20 group ranches each of 35,000 acres and 3,415 head of cattle. Plans also call for provision of credit (other than for water development) to 20 established commercial ranches averaging 30,000 acres and stocked with about 3,750 head of cattle each. These are located in Liakipia and Nakuru District of Rift Valley.

Preliminary plans for the Phase II Livestock Development Project call for group and individual ranch development in Samburu, Narok, and in the South and Central parts of Kajiado District. It is expected that there will be about 200 ranches organized and developed, covering some 5.5 million acres and holding some 380,500 stock units of cattle. Water development costs are estimated at \$4.6 million.

Group ranch development is underway in Kaputiei Section of Kajiado, which is a strip along the Northern edge of the district. Loans are now approved for 9 group ranches. The target is for a total of 19 ranches, covering 798,000 acres and for 80,700 head of cattle.

COAST PROVINCE

About 68% of the land in Coast Province received 24" or less of rainfall. Tana River and Lamu Districts are considered pastoral areas; the other districts are partly pastoral. Preliminary plans call for development of 20 ranches in this Province, covering some 1.4 million in water development. In Taita District alone the goal of the project is to develop 10 Company Ranches of 70,000 acres each, stocked with 3,500 head of cattle.

EASTERN PROVINCE

About 71% of the Province is dry land with 24" or less of rainfall per year. Marsabit and Isiolo Districts are pastoral areas. Kitui is partly pastoral while Meru, Embu and Machakos are considered primarily Agricultural. Preliminary plans are for development of 32 million acres, and holding about 108,200 stock units. The water development for these ranches would cost around \$1.8 million.

F. COURSE OF ACTION

The Course of Action outlined below draws heavily on AID experiences in development of the pilot project in Northeast Province and on AID experience in the Economic Planning Division. This proposal, however, differs from these experiences in that national priority establishment is called for at the beginning to allow choices of action and budgeting at an early date. This will then allow for sharply focused technical assistance in the places and at the time called for by national priorities.

1. Implementation Plan

Development of the range areas under the proposed National Range Livestock Development Project will involve several key stages of implementation as follows:

a. Pre-Planning Stage

The AID team and GOK trainee counterparts will make a general reconnaissance of the range areas involved in the project, will research all data and experiences available, and from this information will evaluate the resource, social political and economic factors. Based on the findings from the above information, the team and GOK officials will assign priorities for planning and development.

b. Planning Stage

The Team and GOK trainee counterparts will prepare detailed range management plans, by priorities, for the various grazing areas. These detailed plans will include: (1) the resource characteristics of the area, including the status of the range, stock management, range carrying capacity, water resource potential, etc.; (2) population and social problems related to range development; (3) recommended changes, if any, required in the present range management system of the area being planned; (4) contribution expected from range users for maintenance and administration, including restrictions or controls, policy and management of wildlife; and (5) a detailed budget showing anticipated costs for the project and the income.

c. Implementation

The range management plans will be implemented according to priorities established. The necessary staffing, equipment, financing, etc., will be available to carry out the development in an orderly, well-planned sequence with minimum delays. The necessary revisions and/or alterations of the plan will be made during this stage of development.

d. Range Operation and Maintenance Stage

This stage is probably at least as important as the Development stage, because the successful assurance of a satisfactory return on the investment depends on the proper management, including maintenance, animal husbandry, marketing, etc., of the range areas. Contribution by the local users will be used for administration and maintenance.

Some pre-planning, planning, implementation, and maintenance has already been accomplished. To the extent that it has been completed, subsequent phases of the project can be initiated promptly in those areas. Pre-planning and planning of cooperatives or group ranches has already been accomplished for some areas and the plans are in process of implementation. Much range management planning for the N.E. Province also has been accomplished and development work is well underway there.

The following table sets forth the more prominent key action items and the period (FY) of implementation during the 10-year period of the project.

KEY ACTION ITEM (Contd.)	1973	1974	1975	1976	1977	1978	1979,	1980	1981	1982
8. Water development potentials defined and located.	////////////////////									
9. Detailed range management plans drawn cost/benefits determined.	////////////////////									
10. Range Management plans approved and financed for implementation.	////////////////////									
11. Range water engineering design completed.	////////////////////									
12. Heavy equipment purchased, manned and operating or contracted for:										
(a) Reservoir construction	////////)									
(b) Borehole construction	////////)									
13. 30% technical staff posted with equipment and support.	////////////////////									
14. Range Management plans implemented.	////////////////////									
15. GOK Technical Officer. Training in range management water development and agricultural economics.	////////////////////									
16. Grazing groups formed, legalized and operating.	////////////////////									
17. Range maintenance equipment purchased, manned and operating.	////////////////////									

KEY ACTION ITEM (Contd.)	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
18. Livestock purchasing centers established and in operation	////////////////////)									
19. Livestock transportation systems and holding grounds established.	////////////////////)									

2. Narrative Statement

This Project will benefit greatly from continuity provided by ongoing activity by the Ministry of Agriculture and USAID in livestock and range development. Some of the basic policy guidelines for future development and development activities are already being implemented by the GOK in anticipation of an expanded National Range/Ranch development effort. Moreover, experience to date by the USAID-furnished technicians on the range/water development pilot project in North East Province, on new ranch development, and in economic planning, makes possible the formulation of quite specific and practical plans as to what the objectives of this new Project should be and how they should be carried out. This greatly enhances the likelihood of a very successful Project. The composition of the proposed USAID team combines the desirable feature of balance among essential technical specialties with the three 2-man teams of Engineers and Range Management Advisors, Hydrogeologist, for field planning and implementing operations, and the two livestock Economist in the Ministry headquarters continuing the very valuable contribution made by USAID in agricultural planning and policy development.

The proposed USAID technical assistance staff would work within the Ministry of Agriculture and be integrated with the various Divisions and with AFC as appropriate to their individual specialities. Feedback and prompt response to field problems should be excellent under this arrangement. The team should have ample opportunity and means to implement the Project's objectives as they would operate as an integral part of the Ministry.

The Planning for the Project and its funding is now in process in the GOK, and implementation starting in FY 1973 is considered most desirable. Ongoing planning involves, among other things, the provision for funding and technical assistance from USAID. Total domestic and external financing now planned for will cover all aspects of the comprehensive national program. These include:

- a) expansion of the Range Management Division capabilities, including additional field staff, equipment and housing.
- b) expansion of the Water Development Division capabilities to develop water resources in the range areas.
- c) provision of funds to the Agricultural Finance Corporation for it to administer loans for ranch and livestock development.
- d) provision of additional funds to the Livestock Marketing Division to further improve its capabilities to cope with difficult range marketing conditions while improving the flow of cattle to market.

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- e) expansion of the Veterinary Services Division's capability in range areas, especially in regard to CBPP, Foot and Mouth, and Rinderpest control, and the expansion of F&M-free zones into some additional range areas.
- f) possible financing of meat processing facilities, either new or renovated.

The proposed USAID technical assistance role in the National Range/Ranch Development Project will cost in the order of almost one-half million dollars per year, or between \$4.5 to \$5.0 million over the projected 10 years of the Project. In relation to the very important benefits likely to accrue to Kenya's economy from the Project, and the total sums to be expended by GOK and other Donors, the USAID contribution appears reasonable.