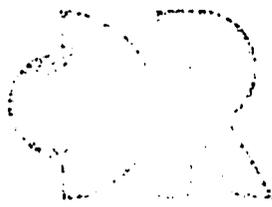


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EVALUATION OF THE KENYA
NATIONAL RANCH AND RANCH DEVELOPMENT PROJECT
(AID PROJECT NO. 615-0157)



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EVALUATION OF THE
KENYA NATIONAL RANGE AND RANCH DEVELOPMENT PROJECT
(AID PROJECT NO. 615-0157)

Prepared for: U.S. Agency for International
Development
Kenya Mission
Nairobi, Kenya

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Contract No. AID/AFR-C-1558

September 10, 1979

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WEIGHTS AND MEASURES; EXCHANGE RATES; ABBREVIATIONS

WEIGHTS AND MEASURES

1 kilogram (kg.)	=	2.204 pounds
1 metric ton	=	1,000 kg
	=	2,204 pounds
	=	0.948 long ton
	=	1.102 short ton
1 kilometer (km.)	=	0.621 mile
1 hectare (ha.)	=	2.471 acres

EXCHANGE RATES

U.S. \$1.00	=	Kenya Shillings 7.20 - 7.395
		(during the time of this study)

ABBREVIATIONS

AFC	-	- Agricultural Finance Corporation
AHITI	-	Animal Health and Industry Trading Institute
AID	-	United States Agency for International Development
CIDA	-	Canadian International Development Agency
FAC	-	Food and Agriculture Organization
GOK	-	Government of Kenya
IBRD	-	International Bank for Reconstruction and Development
IDA	-	International Development Association (World Bank)
IIE	-	Institute of International Education
ILCA	-	International Livestock Center for Africa
ILRAD	-	International Laboratory of Research on Animal Diseases
KLDL	-	Kenyan Livestock Development Loan
KLDP	-	Kenyan Livestock Development Program
KMC	-	Kenya Meat Commission
KREMU	-	Kenya Range Ecology Monitoring Unit
LDP	-	Livestock Development Program
LMD	-	Livestock Marketing Division
MLS	-	Ministry of Lands and Settlement
MCA(RMD)	-	Ministry of Agriculture, Range Manage- ment Division
MOTW	-	Ministry of Tourism and Wildlife
MOWD(RWD)	-	Ministry of Water Development, Range Water Division
MOW	-	Ministry of Works

ABBREVIATIONS

NEF	-	Near East Foundation
NRRD	-	National Range and Ranch Development
ODM	-	Overseas Development Ministry (U.K.)
PASA	-	Participating Agency Service Agreement
PCU	-	Project Coordination Unit
PIO/C	-	Project Implementation Order/ Commodities
PIO/P	-	Project Implementation Order/ Participants
PIO/T	-	Project Implementation Order/ Technical Services
PROAG	-	Program Agreement
SIDA	-	Swedish International Development Authority

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EXECUTIVE SUMMARY

A. Brief Synopsis

The Kenya National Range and Ranch Development Program represents a truly heroic effort under fragile circumstances. Many individuals and organizations have made excellent contributions to this effort, and deserve appropriate commendation.

It is especially heroic in the massive attempt to supplement the available water supplies for livestock, and to do that in such a way as to:

1. Limit pastoralists in the North Eastern Province to known grazing blocks and systematic rotation of pastures within those.
2. Organize pastoralists in the Southern Rift Valley into group ranches.
3. Develop company, commercial, and cooperative ranches in the Coastal area which would fatten an increased off-take of immature cattle from the herds of the pastoralists mentioned above.
4. And, through an organized marketing system, with attractive price policy, provide both a larger supply of beef to the people of Kenya and a source of export earnings, as well as somehow enhance the lives of Kenya's low income pastoralists.

This project is referred to above as an heroic effort. Some of its achievements are outstanding, and deserve

special commendation.

The scene of literally thousands of camels, goats, sheep, donkeys and cattle drinking from a large reservoir in an arid region is testimony to the success of some parts of the NRRD Project. To bring "water to the deserts" has been as worthy a goal for humanity as to travel to the moon, or to build massive cathedrals.

And the sight of giant earth moving scrapers, circling around a growing pan, aided occasionally by bulldozers, staffed by a competent, dedicated group of Kenyans, is further testimony to achievement. Living in temporary camps near their work, some with families and others separated from wives and children, these local engineers and technicians have learned how to handle large, complex, foreign equipment with skill and perseverance, and they are doing an effective job.

These two phenomena illustrate that processes have been put in motion. People have learned new skills. Others have studied abroad, and brought back scientific and technical knowledge which they can now apply to the practical problems of a project such as this. And many others have had the opportunity to take their book-learning to the field, and gain practical experience.

Elsewhere in this report, achievements are compared with project goals, and often fall short of those goals. In the view of the evaluation team, the problem was often that the goals were unrealistic. It takes time to do things. It

takes time to select, purchase, ship, and assemble heavy equipment. It takes time to organize groups of people to do things they have not done before. And it takes time for animals to grow.

Further, as the pastoralists could have told the planners, every so many years there is a drought. Sometimes there are even two dry years in a row. That was not in the plans, but the drought of 1974 and 1975 prevented several aspects of this project from achieving goals. On the positive side, this has sensitized technicians, financiers, planners, and international donors to the realities of a fragile environment. It will strengthen all of them and make them more competent in the future. This kind of learning from experience is another achievement of the National Range and Ranch Development Project.

Among other positive consequences of the project, particularly in group ranching areas, may be reduction of friction between clans. As individual groups become more stable in their territory, and become better acquainted with neighboring groups, cooperation may outweigh competition in certain aspects of life.

The assumptions which underly an effort such as this are many. Some are probably sound, particularly those relating only to the biological phenomena of rotational grazing in semi-arid and arid areas. Others, particularly assumptions regarding the human, ecological, cultural, mechanical,

administrative, political, and diplomatic aspects of the effort, are in serious doubt. Among the latter are the assumption that it is feasible and desirable to make a significant increase in livestock production in Kenya, that a continuous source of immature "feeder" cattle can be produced in Northern range areas for further growth in Southern ranch areas, and that supplementary water can be provided with imported heavy mechanical equipment, submersible pumps, and deisel electric generator sets.

Several suggestions are offered in this report for modifications of both the strategy and the implementation of the Kenya NRRD Project. However, since this is the report of an evaluation team commissioned by the U. S. Agency for International Development to study its involvement, most of our recommendations are directed to the AID.

Modifications in AID involvement are based on such findings as:

1. The AID project design was faulty in its basic assumptions and in its administration. Particularly, it provided insufficient logistic support and administrative support for the scope of work, and the time frame for goal achievement was much too short.

2. AID project administration itself varied, over the years, from negligent to courageous to inept. Funds were transferred to the Government of Kenya when agreed upon conditions precedent had not been met, and certain of those conditions were basic to project implementation. When

assumptions regarding conditions of selection, placement, organization, and operation of AID technicians were reported to have been unwarranted, and serious personal stress developed, the AID Mission was either unwilling or unable to make appropriate adjustments in project design, organization, and implementation strategies.

3. Coordination between AID and the GOK leaves much to be desired. With several foreign donors and several different units of the GOK involved, lack of coordination, cooperation, and control is not unusual. However, project design could be changed as operational personnel learn from experience.

4. Loan funds are not achieving what was anticipated for them. Financial arrangements via the Agricultural Finance Corporation are not supplementing gradual development of management competence from within ranches, but are replacing it with management dominance from outside the ranch.

5. The system of procurement of pumps, vehicles, earth moving equipment, etc. from the U.S.A. is not delivering appropriate equipment for the Kenyan ecosystem. Neither is it supplying spare parts in a timely fashion, nor functioning with the local dealer support which AID policies and procedures require.

6. Maintenance of such equipment is not being carried out in a satisfactory manner.

7. The participant training program seems to have gone well, and represents a major achievement of this effort,

with a growing staff of Kenyans in the field of range management.

If appropriate modifications in the project strategy can be made, emphasizing gradual change in a longer time-frame, recognizing that the pastoralists themselves tend to have superior knowledge of their fragile ecosystem and how to survive in it, with increased concern for minor improvements in the subsistence system, and less emphasis on commercial marketing and extensive credit, then the U.S. assistance to the Kenya National Range and Ranch Development Program should be continued.

B. Conclusions and Recommendations

A summary of this project, as organized in the AID "Logical Framework" is found in Chapter II, Section A. That summary also describes the findings of this evaluation team in a concise manner. This section lists the major recommendations, grouped by major categories, with reference to the chapter and section of the full report where each may be found.

1. General Project Design and Strategy

1. The project design, in general is weak. Many crucial assumptions were unwarranted. (II,A,2)
2. It is not in the long run interest of the people of Kenya to increase present numbers of cattle, sheep, goats, camels, and donkeys. (II,A,5)
3. The alternative of developing small scale water facilities, such as hand pumps and windmills, to supplement the wells which are presently in use throughout the NEP, running from 30 to 50 feet in depth, and using simple bucket and

rope techniques, is worthy of consideration. (II,B,3)

2. Economic Considerations

4. Current cost-price and net return situations are not adequate to expand cattle production. (II,A,6)
5. In the absence of prompt action by the GOK to permit the necessary increases in cattle prices, we frankly doubt that AID funds should continue to be made available for either range water development or the purchase of cattle for ranches. (II,A,6)
6. Exports of live animals, particularly sheep, goats, and camels, should be authorized whenever the KMC or private butchers cannot buy at prices attractive to producers. (II,B,9)
7. The length of capital development loans for ranches should be increased to 30 or 40 years. (II,C,5, and III,C,5)
8. Many types of practical skill training should have higher priority than loans for livestock purchases or the training of present RMO's for advanced degrees. It is recommended that AID phase out livestock loans and increase training. (III,E)
9. The private company status of company ranches should be changed to public in an effort to obtain more private capital, and managers, foremen, and other employees should be encouraged to purchase shares. (III,C,7)
10. Price controls on beef should be removed and LMD and KMC should be required to compete freely in buying with private traders and butchers. (II,B,9)
11. AFC should not be authorized to purchase directly for ranches. This should be done either by LMD or private traders. (II,B,9)
12. LMD should set separate prices for old cows, calves, heifers, and steers. (II,B,9)
13. LMD and KMC should be given responsibility for crisis or distressed buying in the event of extreme droughts, and they should be paid to the extent of any losses incurred. (II,B,9)
14. The cost of disease control should be borne by GOK. (II,B,9)

15. No water fees should be charged to producers in the NEP. (II,B,9)
16. LMD, AFC, KMC, traders, and local butchers should be required to report by month or by quarter, for each district or buying center, on purchases and prices. (II,B,9)
17. GOK should absorb the costs of the quarantine requirement for cattle in transit. (II,C,6)
18. More auction sites should be established for all livestock areas with weighbridges as required. (V)
19. Organize a National Livestock Producers Marketing Association with Provincial and District branches.(V)
20. There is need for analysis and further research on marketing of livestock in Kenya. (II,A,7)

3. Ecological and Sociological Considerations

21. Water availability should be used as a measure to conserve grass for the dry season, and also to conserve enough grass and forage when cyclical drought can be expected once in every six or seven years. (II,B)
22. Animal numbers on the rangelands should be limited to the amount of useable forage, its location and accessibility, and the availability of wholesome drinking water to fit a range management plan which will reduce the wild fluctuations in stocking rates and ultimately overgrazing. (V,E)
23. If range and ranch management in Kenya is to be adequately monitored, and range condition trends made, it should be done as soon as possible. Some kind of organization should be established for this purpose. (II,B,2)
24. Dips or spraying programs should be established in several locations in each NEP grazing block. (II,B,9)
25. To the extent that local pastoralists themselves had some voice in deciding what should be taught to whom, and where and how, the Training Centre at Griftu might be even more effective. (II,B,5)

26. The approach to pastoralists should be modified. Marketing services could "float" from location to location. Even schools and health services could be mobile, moving with the pastoralists. Dips and spraying arrangements for cattle could be arranged without confinement of group ranches to particular locations. NEP graziers should be free to move over wider areas than the presently identified grazing blocks, and more local, appropriate technology should be used to improve watering points. (VI)
27. Applied, practical, technical training schools should be provided in various skills for pastoralists. (III,B)
28. Provide language training for professional agriculturalists in the language of the pastoralists. (III,B)

4. Project Implementation

29. A project of this magnitude needs a larger and more adequately supported back-up staff within the AID Mission. (III,D)
30. If no coordinating unit which can be accountable for performance is feasible, then it is probably in the interest of both governments involved to bring the project to an early conclusion. (III,D)
31. A streamlined system for supply management should be established for this project, or it should be limited to equipment which can be fabricated in Kenya. (II,B,7, and III,C)
32. Any AID-supported personnel serving as part of GOK Ministries in this project should have clear specific memoranda of agreement provided jointly by AID and the particular Ministry, specifying duties and responsibilities, as well as lines of authority and accountability. (III,A,1)
33. AID should fix a quota and insist on a minimum proportion of participant fellowships, particularly in range management, being assigned to personnel who speak at least one common pastoralist language. (III,B)
34. There should be a memorandum of agreement between the AID Mission and the particular unit of GOK in which any individual AID-sponsored staff are assigned. (III,D)

35. If AID cannot staff this project with its own permanent professional personnel, it might be better to contract with an organization which could combine personnel selection and recruitment from the U.S.A. with management and administration in the field. (III,D)
36. Some mechanism for improved coordination and communication among all "donors" should be established. (III,D)
37. If the Mission cannot provide the logistic support for frequent field travel, and sufficient numbers of personnel that both field and Nairobi responsibilities can be covered, then this might not be the appropriate type of project for this AID Mission. (III,D)
38. The IH Scouts were provided as part of the loan, but were a poor choice. The Kenyan government should not be held accountable for repayment because of the poor judgement of the procuring officer. (II,B,7 and III,C)
39. AID should work with GOK in developing ways for the voices of pastoralists to be heard more effectively, and for those pastoralists to have more involvement in decision making for this project. (VI)

I. INTRODUCTION

A. Purpose

The purpose of this document is to summarize the findings of a team of three individuals, representing Devres, Inc., a consulting firm which contracted with the U.S. Agency for International Development to evaluate the Kenya National Range and Ranch Development Project of USAID.

B. The Evaluation Assignment

The objective of this undertaking is described in the contract (No. AID/AFR-C-1558) as follows:

"To perform an in-depth evaluation of the National Range and Ranch Development (NRRD) Project. Because of the interrelationships of the project with the Kenya Livestock Loan (615-T-008), the team should also be prepared to review the activities of the loan program as they relate to this grant project, and make recommendations for improving the effectiveness of the joint USAID/GOK range and ranch livestock development activities in Kenya."

The specific scope of the work is presented in the contract in these words:

"The evaluation will require an evaluation team of three persons for approximately two months. The team will work with the active participation of representatives of the various divisions of the Ministries of Agriculture (MOA) and Water Development (MOWD) which are associated directly with the NRRD project. They will also meet with representatives of the Agricultural Finance Corporation (AFC), which makes sub-loans to ranches under the Livestock Development Loan, and representatives of other donor programs jointly involved in range, ranch and livestock development activities in Kenya. The team shall also meet with representatives of such organizations as ILCA (The International Livestock Center for Africa) and KREMU (The Kenya Range Ecology Monitoring Unit).

"The scope and conduct of the in-depth evaluation will include, but not be limited to the following:

"(1) Brief analysis of the project design and assumptions upon which it is based, to evaluate their appropriateness and correctness in terms of achieving the project goal, purpose and

end of project status indicators (EOPS). This analysis should extend to all project elements over the life of the project and should consider changed or changing circumstances since the project was formulated and reformulated.

"(2) Evaluation of the progress to date toward achievement of the stated project outputs and EOPS, and identification of those constraints which impede achievement of the outputs and EOPS. The evaluation should not limit itself to those constraints existing within the parameters of the project but should also consider those constraints which affect it from external sources, such as in the political/bureaucratic, economic, environmental and social sectors.

"(3) Assessment of the effectiveness and appropriateness of each project input or component contributed by the USAID and by the GOK. This would include such things as:

(a) The type, number, qualifications, timeliness of arrival and scopes of work of U.S. technical personnel; their integration into overall GOK livestock and range/ranch development activities; relationships with the USAID; relationships with related activities of other donors and organizations; effectiveness of utilization; geographic location; etc.

(b) The adequacy of academic, in-service, and counterpart training; and comparative appropriateness of long and short term training.

(c) The quantitative and qualitative appropriateness of project commodities and equipment support.

(d) The administrative and project management support for the project provided by both GOK offices and USAID.

(e) The effectiveness of the AID Livestock Development Loan (including loan funded U.S. technicians) as it relates to the activities of this project.

"(4) Assessment of the project's relationship and contribution to achieving the goal and purposes of the Kenya Livestock Loan and to the GOK's Phase II Livestock Development Program.

"(5) Evaluation of the ecological impact of the project to determine whether, by the end of the project, the GOK will be capable of implementing and maintaining a fully institutionalized range and ranch management system which will support livestock production by low-income producers without negatively affecting the ecological balance in the areas concerned.

"(6) Assessment of the sociological effects of the project on the pastoral societies involved.

"(7) Review of current GOK planning for its long-term livestock program, including specifically Phase III. This review is not to suggest possible AID assistance, but rather is to serve as a guide for the GOK and possibly the donor community as to future assistance requirements in the livestock subsector."

C. History of Range and Ranch Development Project

This project has a long and complex history, involving not only the GOK and the USAID, but many other "donor" agencies as well. Readers familiar with the project are urged to skip to Section C. Others will find a context for what follows in this Section.

1. Description of the Project

(from USAID-KENYA CAPITAL ASSISTANCE PAPER
AID-DLC/P 2024 4/26/74 - See Annex 3, Item 58)

"The proposed multi-donor project would extend credit through the Agricultural Finance Corporation (AFC) for the Development of about 80 group ranches, 100 commercial ranches, 21 company or cooperative ranches, and three feedlots."..."It would also provide for the development of seventeen million acres of rangeland, 14 million in the Northeastern Province, and three million in the Isiola district, by providing watering facilities and access roads. Marketing facilities would also be extended through establishment of new markets, upgrading of existing holding grounds, and improvement of stock routes, the setting up of new holding grounds, and the augmenting of transportation facilities. Three wildlife areas would be developed to help overcome the resource competition from livestock, and a livestock census and monitoring unit would also be included in the project to improve technical knowledge in this field. Finally, the project would provide for technical services, training, project monitoring and evaluation, and for further project preparation. AID financing would be limited to equipment and supporting services for the North Eastern Province rangeland development (\$5.3 million), cattle purchases for a portion of the ranching program (\$4.1 million), and a meat processing feasibility study (\$200,000)."...

The project purpose was stated as follows:

"To increase the quantity and quality of livestock production to meet growing domestic demand and to earn foreign exchange through exports of livestock and livestock products.

In so doing, the total Project will directly benefit pastoralists and other small cattle owners and wage employees on commercial and company ranches, in meat marketing, wildlife and range water development. In addition, higher prices of beef (an undertaking negotiated between IDA and GOK) would transfer income directly from relatively prosperous urban consumers to the lower income rural producer. The AID portion of the project will contribute significantly to the conservation of Northeastern Province rangeland as well as result in higher incomes of beneficiaries of the range and ranch development program through increased livestock production."

2. Livestock Development Project Phase II

In 1965 the GOK asked the International Development Association to make a survey of requirements necessary to upgrade its' livestock production and marketing facilities. The survey was made in 1967 and published in 1968. The report identified these needs as range development, facilities for livestock movement and marketing, range water survey and development, and such technical services as range management and veterinary services.

Some of the major factors which were limiting such needs were identified in the report as the traditional cultural patterns of the indigenous population, the need to protect wildlife resources, the hot and dry climate conditions, and the existence of many livestock diseases throughout the country.

A pilot program was recommended by the writers of the report. The objective was to increase beef production, thus improving the standard of living of all Kenyans, as well as providing foreign exchange through the export of beef. The second objective was to protect Kenya's wildlife resources, and the third to stabilize the nomadic people and improve their living conditions within the National framework.

The IDA provided funds, as did the Swedish International Development Association (SIDA) and the GOK for a pilot project. In carrying out this program, 1969 - 1974, seventy-four reservoirs with an expected capacity of 249 million gallons of water were excavated, 1250 miles of simple earth roadways, or track, were constructed and thirty-eight boreholes, or wells, were drilled. (See Annex 3, Item 15, p. 3)

In October-November, 1971, IDA conducted an Appraisal Mission to determine the feasibility of follow-on assistance based on the experience of Phase I. While Phase I was found not to

have fulfilled all expectations due to problems or delays in land adjudication, insufficient qualified staff and organizational deficiencies in the AFC, the Appraisal Mission was favorable to a second phase and solicited participation in a joint or parallel financing on the part of CIDA, ODM, and AID. The resultant Phase II Livestock Development Program was designed to concentrate on ranch development, range water development, livestock marketing and wildlife conservation. A basic aim of Phase II was the increasing of foreign exchange earnings from livestock exports and less directly from supplying meat to Kenya's expanding tourist industry. Equally important, it was also intended to improve the economic welfare of the poorer Kenyans through their increased participation in the livestock industry and provide them with a greater and more steady access to animal protein at fair prices. The program further sought to induce a stable way of life among the nomadic pastoralists by integrating them into a system of livestock production based on rotational grazing blocks including a reliable water supply for their herds, thus permitting them to settle in one area and thereby have more ready access to health, education and other Government services.

In 1972 IDA solicited funds from Canada (CIDA), the United Kingdom and the United States for a Phase II Program. The United States agreed to provide financing for the Range Water Development Scheme in the North Eastern Province, the Ranch Development and Feedlots portions of the project, and to provide consultants and technical services.

AID has been involved in the Kenya Livestock Development Program from its inception, both directly through projects integral to the program and through a series of less directly related projects--i.e., University of Nairobi Veterinary Faculty, Higher Agriculture Education and Agriculture Credit. AID's direct involvement began in 1969 with the North East Range Water Project which provided technical assistance through a USDA PASA for the development, in conjunction with IDA/SIDA loan funds, a pilot range area of 1.8 million acres near Mado Gashi. The Range Development Project which began in 1959 also became part of the Phase I Livestock Development Program. This project provided one advisor at the national level to assist in organizing a Range Management Division in the Ministry of Agriculture and three advisors to work at the provincial level (Coast, Rift Valley, and Eastern Provinces) to set up demonstration ranches. These two projects, along with two PASA livestock economists working in the Economic Planning Division of the Ministry of Agriculture under an existing agriculture planning project, were amalgamated into the National Range and Ranch Development Project in FY 1972 as part of the Phase II Livestock Development Program. Two years later, in September, 1974, an AID Livestock and Development Loan was signed.

The United States Government, through the Agency for International Development (USAID), was party to Loan No. 615-T-008 made on September 11, 1974 to finance the three sections named above.

Under terms of the loan agreement, AID agreed to lend the Government of Kenya (GOK) an amount not to exceed U.S. \$9.6 million to finance U.S. dollar and eligible local currency costs of goods and services required for the project.

On March 26, 1977, USAID authorized a loan amendment increase of U.S. \$3.25 million to provide a reservoir and track maintenance unit for the Range and Water Development in the North Eastern Province (NEP). This agreement was signed on July 20, 1977 by the GOK, AFC of the GOK, and by USAID.

The 1974 USAID provisions for the Livestock projects were changed significantly in 1978. The project amendments were primarily to add personnel, increase training and add transportation vehicles, as follows:

- a) 1 hydrologist
- b) 2 livestock economists
- c) 2 range production specialists, one position for RPS would come from changing the proposed Range Management Training Specialist
- d) 24 man months consultations
- e) US participant training portion is to include advance training for an additional eleven range planners (for a project total of twenty-three) as well as a reduction of planned agricultural engineering participation from six to three and the elimination of further training in agricultural economics (three of a planned eight have been trained)
- f) USAID funding of thirty local range/ranch planning scholarships for students from pastoral areas
- g) another eight scholarships will be given for mechanical training at Kenya Polytechnic Institute to provide for the program's future equipment maintenance staff needs
- h) add 10 four wheel drive transport vehicles.

3. Ranch Development

The loan provides the Kenya currency equivalent of up to U.S. \$4.1 million for lending by AFC to individual ranches. "These funds, together with such funds as may be provided for sub-loans by the borrower or AFC shall be used to finance the procurement of cattle by sub-borrowers. Group, company, cooperative and commercial ranchers shall be eligible sub-borrowers. Sub-loans shall be made to the following:

- a) approximately 60 group ranches, most of them being in Kajiado, Narok and Samburu Districts
- b) approximately 21 company or cooperative ranches, mainly in the Taita/Taveta, Tana River, Kwale, Kilifi and Kitui Districts
- c) approximately 100 commercial ranches mostly in the Nakuru, Laikipia, Nyandarua and Machakos Districts."

4. North Eastern Province Range Development

The loan provides up to U.S. \$5.3 million to finance goods and services to assist in the planning, design, and construction of roads and tracks, reservoirs and pans, water facilities and buildings required to develop and improve livestock grazing areas and livestock production in Kenya's North Eastern Province. This has since been raised to U.S. \$9.55 million.

The allocation of loan funds in United States dollars for this part of the project was as follows:

- a) \$1,684,000 for tools, equipment and vehicles
- b) \$1,002,820 for petrol, oil, and lubricants
- c) \$649,700 for spare parts
- d) \$16,000 for aircraft charter
- e) \$47,480 for Range Trend Teams
- f) \$594,000 for technical services
- g) \$802,300 for contingencies

As its contribution, the GOK agreed to provide the Kenyan Shilling equivalent of U.S. \$3.7 million to finance such local costs as the Wajir Workshop, warehouse and staff housing construction, duty and sales taxes, local staff salaries, reservoirs, borehole and track construction and maintenance, as well as the Range Trend Team.

The loan amendment of U.S. \$3.25 million provides equipment and operating funds for a reservoir and track (road) maintenance unit for use in reconditioning reservoirs and tracks already constructed, thus preserving their utility, as well as additional support and supplies.

It was anticipated that approximately 45 large, 24 medium, and 160 small reservoirs (pans) would be constructed, 37 bore-holes drilled and equipped, and 2600 miles of track constructed or maintained during the four year life of the project. In addition, 10 large reservoirs were to be equipped with pumping equipment. However, a Japanese Yen Credit for a dam construction unit was not provided during the life of the project as had been planned, therefore, the small reservoir construction was reduced to 40 pans instead of 160 to bring the work program in line with the equipment available.

5. Meat Processing Study

The loan provides up to U.S. \$200,000 to assist in financing a contract or contracts for consultant studies to determine measures to improve and develop the meat processing industry in Kenya.

6. Project Coordination

"For the purpose of overall management and coordination in the carrying out of the project, the borrower, (GOK) shall maintain in the Ministry of Agriculture a Project Coordination Unit and shall staff it adequately at all times. This unit, under the direction of a full time Project Coordinator will be responsible for the overall organization and supervision of the project and coordination with the borrower's ministries and other agencies involved in the Project."

7. Administration of the Range Water Development - North Eastern Province

"Range Water Development, North Eastern Province, shall be administered by an Equipment and Management Specialist furnished under the AID technical assistance portion of the loan who will work under the overall direction of the Head, Construction Division, using policies established by the Director, Water Department, Ministry of Water Development (MOWD).

"Other personnel furnished under the AID technical assistance portion of the loan will consist of two master mechanics who will work in the field and a mechanic-supplyman who will supervise the daily operation of the Wajir Shop and Warehouse under the direction of the Equipment and Management Specialist.

"Procurement from United States sources will be accomplished through the Afro-American Purchasing Centre, Inc. (AAPC), One World Trade Centre, Suite 1271, New York, NY 10048, in accordance with the terms of a contract signed by the GOK and AAPC March 24, 1975, and amended January 12, 1978.

"Procurement for the Ministry of Water Development within Kenya will be done by the Logistics and Accounting Branch of the Range Water Section, North Eastern Province and the Supplies Section of the Ministry of Water Development."

D. The Evaluation Strategy

1. The Devres Team

The Devres Team consisted of three individuals with extensive experience as planners and implementers of projects similar to the Range and Ranch Development Project. All had worked in Africa before; all were professional agriculturalists; all had lengthy field experience in rural parts of Africa; all had previous experience with the U.S. Agency for International Development as well as other donor agencies; all had lived and worked with animals, milked cows, and managed herds.

However, given the magnitude of the evaluation task as outlined above, and the extensiveness of the project itself, the team calls the reader's attention to the fact that there were only three of them, not thirty. They were in Kenya for only two months, not twenty. What they have done must be viewed as partial, combining the extensive with a little intensive, and far from conclusive with respect to many of the particulars.

The findings are based on review of a large number of studies and reports on the project itself and relevant phenomena, on interviews with as many individuals connected with the project as we could find in Nairobi and the other places visited, interviews with other informants not connected with the project, and our own personal observations.

The recommendations reflect the personalities and the personal experience of James Birkhead, Allan Sudholt, and George Axinn. Summaries of their biodata may be seen in Annex 10. Although the three have experienced the world from a variety of different perspectives, their observations of the NRRD project and the inferences they have made are surprisingly similar and consistent. This consistency itself, in fact, has added to the Team's confidence in what they have written in this document. This material reflects only the professional judgements of the authors, and in no way states an official position of either AID, the Government of Kenya, or Devres, Inc.

2. What the Team Did

Meeting in Washington, D.C. on the 25th of July, 1979, the team was briefed in Devres headquarters, and initiated reading of some of the project documentation listed in Appendix 7.3. There was also a briefing session with personnel of AID/Washington on 26th July, and the team took off that evening from New York to Nairobi.

Arriving in Kenya late on 28th July, they began the acquisition and study of additional documents, and a series of interviews with personnel of such agencies of GOK as the Ministry of Agriculture, the Ministry of Water Development, the Ministry of

Lands and Settlements, KREMU and the Agricultural Finance Corporation. These opened in a meeting at the Ministry of Agriculture chaired by Mr. Lucas Ayuko of the Range Management Branch, in which all other relevant units of GOK were present.

Also during the first two weeks of the team's stay in Kenya, there were discussions with personnel of such international agencies as the World Bank, the Canadian International Development Agency, the British Overseas Development Ministry, ILCA, and the Ford Foundation, as well as staff of AID.

A full list of all persons interviewed, in Nairobi and in other locations in Kenya, is given in Annex 2.

Then, the team travelled to the field, visiting local officers of GOK, company ranches, group ranches, range grazing blocks, pans, reservoirs and dams, bore holes, pumps, and other physical facilities being developed as part of the project. The itinerary followed by the team is given in Annex 1.

During field travel, the team members were accompanied by personnel of relevant GOK agencies and by personnel of AID. This was a great help in facilitating the actual logistics of the journey, and the access to various ranchers and pastoral groups. Without this assistance, the team could not have seen so many people and places in so short a time, and this collaboration is greatly appreciated.

On the other hand, team members were hardly ever alone with pastoralists or ranchers, or even individual government officers. This can be expected to have biased all of the discussions in the direction of saying nothing negative about the work or program of any of the others present. While the team used its own techniques to try to discover "truth" in regard to the many areas discussed, it acknowledges that the very group nature of almost all interviews must have influenced what was said and what was heard.

As part of its strategy, therefore, the Devres Team developed its own set of hypotheses early in the study, and then attempted to test each hypothesis against available data: reports of earlier observers, statements made to the team, and team observations of the people, livestock, and equipments being studied. How well this was done will be judged by readers of this report.

before, some at much greater depth. This team tried to take advantage of such earlier work, analyzed the recommendations of earlier evaluations, assessments, and appraisals, and then used these as a base for its own hypotheses. To the extent that exercise was successful, the present report should achieve its objectives, and be useful to AID, which commissioned it, as well as to its partners in GOK.

E. Acknowledgements

The Devres Team appreciates the many courtesies extended to it by personnel of GOK, AID, World Bank, ODM, CIDA, KREMU, ILCA, and numerous other agencies and organizations in Kenya. Without the time and energy those individuals provided, this report would not have been possible.

In particular the team appreciates their official host in Kenya, Mr. Larry Abel of AID. From the moment of their arrival at Jomo Kenyatta Airport, through many interviews in Nairobi, travels to the Coast, the Rift Valley, and the North East... and in both difficult and pleasant encounters, he provided the logistic and human support which made the mission possible.

In the Ministry of Agriculture, the team is particularly indebted to Mr. Lucas Mwangi, Mr. Richard Muriuki, Mr. Joseph Mwangi, and Mr. Evans Mweya, and Mr. Samuel Koros, as well as other National, Provincial, and District Range Management and Ranch Planning Officers. Others, such as Mr. E. M. Kachula of Agricultural Finance Corporation, Mr. William Tatua of Ministry of Water Development and Mr. E. A. Idwasi, Registrar of Group Representatives of the Ministry of Lands and Settlements, were especially helpful.

A full list of all those officials with whom the team met is included in Annex 2. It does not include, however, large number of individual pastoralists, other range and ranch workers, officers of GOK, and many others with whom individual members of the evaluation team had conversations, but whose personal identification was not recorded. To all of them, we are indebted.

The team also acknowledges the fine backstopping and other arrangements made for it by the home office staff of Devres, Inc. And finally, the team appreciates the consideration of its own families, who were left behind at home during the two months of field study in Kenya.

The team also developed a list of the assumptions which seemed to underlie the original range and ranch development program, and provide the basis for their modifications as time went by. Then the team used its own observations and analyses to test the validity of the assumptions.

In the testing of both its hypotheses and the assumptions, the team sought evidence which could either be described in this report or could be added in the appendix materials. The attempt was made not to come to any conclusion without first having assembled the available evidence.

The team attempted to follow the challenge provided by the scope of work in the contract between Devres and AID, and to do so in the manner suggested by Devres in its proposal to AID. It was influenced, however, by the suggestions and expressed aspirations of personnel of GOK, and by its own findings as it went along.

During the course of its first six weeks in Kenya, new hypotheses continued to emerge, and those which seemed relevant and necessary were tested. In some cases data were not available, and in other cases, the time and travel required to obtain adequate evidence were simply beyond the scopes of this evaluation.

Many questions which arose during the course of our studies were greater, in number and in depth, than the answers to them which we were able to accumulate. There were, for example, problems and questions relating to many aspects of the ranching situations, and of range management situations, for which long-term scientific research is needed. There are questions of the biology, the ecology, the sociology, and the economics of both ranching and range management for which we were unable to find satisfactory answers. In certain cases, data needed to make analyses and evaluations simply did not seem to be available. Opportunities for future scholarly research abound.

In addition, the team faced questions with regard to specifics on individual ranches, and among various pastoral groups, where answers simply were not available for the asking. The answering of some of these questions would have taken weeks of detailed further investigation. Some aspects which the team wished to understand were not illuminated during the evaluation and thus are beyond their ability for comment, suggestion, or recommendation.

Fortunately this team was not the first to examine the range and ranch programs of Kenya. As the list of publications in Annex 3 testifies, others have studied these problems

II. PROJECT DESIGN

A. General

This chapter deals with project design, and is divided into three sections. The first examines the general aspects of the design, evaluating in accordance with the AID Logical Framework; testing the many assumptions involved; and then considering other factors which relate to the entire project.

This is followed by two more specific sections evaluating project design. The first of these examines the range development program in the North Eastern Province, and the second considers the ranch development work in the southern provinces.

1. Logical Framework Analysis

To put this evaluation into context, this section examines the total AID project in the larger framework of the national effort with respect to pastoralists and livestock. It follows the documentation of AID as summarized in the Logical Framework, Project Paper Revision No. 3 (615-11-190-157), as revised in PP Revision No. 4 dated July 11, 1978. In the order of the Logical Framework, it moves from the program goal to project purposes to outputs, and then to inputs.

Program or Sector Goal: Increase income and improve quality of life for low income livestock producers in range and ranch areas.

Three "Objectively Verifiable Indicators" are stated for this goal. The first has to do with "family real income" in the North East and in the ranching areas. Since most families in both the NEP and in the ranching areas are subsistence pastoralists, who consume their own outputs and produce their own inputs, it is our considered judgment that estimates of "family real income" are not "objectively verifiable indicators". The data we have collected suggest that such families exchange, in the marketplace, only from 5 to 20% of the total flow of materials and energy recycled within the family or clan unit, and therefore conversions to estimates of cash flow in U.S. dollars are falacious and misleading.

On ranches, it is not specified as to which families' real income is the indicator. We find that the company ranches are owned by a group of shareholders who neither live on the ranch nor tend the livestock. In most cases, they have received little or no additional income from the shares they hold in these ranches. If they did, it was before 1974 and the drought which followed. Since then, none of the ranches seem to have paid anything to share holders. On the other hand, these ranches have taken on loans from AFC on a ten-year term, which is too short for cattle ranching. It would be too short in better climates, and unlikely to be feasible where the ranch had little in the way of infrastructure when the loans were first made, and in semi-arid areas which may suffer drought once or twice in a ten-year period. Most ranches are in arrears, and prospects are not promising. Almost none of the share holders work on the ranches.

Managers are mostly junior level government officers, whose incomes are not affected by this particular assignment. It tends to be a short term assignment for the individuals involved.

The actual herding of cattle is basically done by pastoralists from further North. These individuals do have a steady cash income (approximately 202 Kenya Shillings per month), but they form a very small proportion of the population, and are only temporary employees, who come and go to the area from outside.

As for the group ranches, the only perceptable change in the cash flow or total animal stock position attributable to the ranching program seems to be indebtedness in most cases, and increased cattle disease and rainfall access risk.

It does not appear that there is any increase in real income among families involved in ranch programs. However, since cash flow may be irrelevant to pastoralists, as mentioned above, we repeat that cash flow is not an objectively verifiable indicator of quality of life. If "income" as stated in the Logical Framework means cash flow, there is no evidence that it is increasing for these families.

What has been said above for ranches is also true for the livestock producers of the NEP. We found no evidence of any change in quality of life that could be associated with the grazing block program there. Since livestock are not kept primarily for cash profit through market transactions, the measure may be inappropriate. Some animals are sold, however, but the data suggested in the Log Frame as means of verification simply do not provide that information.

The second set of indicators has to do with the goal of settling pastoralists on smaller, known, and surveyed pieces of land. We have serious concern that such restriction in the normal patterns of movement of pastoralists may not be in the interests of those pastoralists. It is not likely to lead to either increased "income" or to improved "quality of life". Such change may be necessary for other reasons, but to measure its impact from the perspective of these economic and social criteria (program and sector goals) would be dysfunctional.

The third indicator suggested has to do with social services and commercial trading facilities which may be available by 1989. It is obviously too early to comment on this one. In the group ranching areas, marketing facilities seem to be diminishing. In the NEP, however, marketing facilities appear to be improving.

As mentioned above, the means of verification mentioned in the Logical Framework simply do not provide the promised data. ILCA is probably farthest in distance between promise and performance, but other data are also partial and inadequate.

As for the "important" assumptions, we find them heavily economic, in a situation where the biological, administrative, and human-cultural, and socio-political phenomena involved may account for a greater proportion of the variance than do the economic. Further, the major assumption relating price/cost ratios to offtake and real income is unwarranted. Price/cost ratios have become increasingly unfavorable in the first place, and real income does not depend upon offtake in the second.

With respect to the indicators on lands and settlement, land adjudication is behind schedule. Ranch plans have, in fact, been used as a basis for transferring land to shareholders, but the long-range plans are for further subdivision of ranch lands into small holdings some day, and this affects who is allowed to hold shares now, and under what conditions. The assumption that increased livestock-generated-income and permanent grazing will induce settlement on grazing blocks seems unwarranted. To date, neither the permanent grazing nor the increased income have materialized.

With respect to the goal of improved quality of life for low income livestock producers in range and ranch areas, it seems that neither the "objectively verifiable indicators," the "means of verification" nor the "important assumptions" were appropriate.

2. Project Purposes

Beginning with the assumption, it does not appear that price/cost ratios have remained favorable. The demand certainly is there, and shall probably exceed domestic supply in the next few years. However, the assumption that production would respond to demand assumes a market economy, and the majority of the low-income producers seem not to be on the market economy, but are basically subsistence pastoralists. Livestock numbers represent savings and stock wealth, and are not normally exchanged for money in market. Livestock are exchanged within the system for various social purposes.

As mentioned above, the means of verification promised when this project was initiated simply have not materialized. Further, the suggested indicator of an increase in marketed offtake from 7 - 8% to 11 - 12% by 1984 seems unlikely. These estimates may have been too high in the first place. And offtake is more related to the climate conditions than to any of the variables which this project is trying to manipulate. In the severe drought years, the offtake went down drastically. Since a post-drought period of three or more years is required for herd size to build up, the offtake, has just begun to build up from the NEP this year. As long as prices for "immatures" are relatively low, it is unlikely that offtake will get as high as the Log Frame suggests, but until better data are available, this is mere speculation. Our best estimate is that present offtake is in the magnitude of 4%, and never was as high as 8%.

Further, data are not available to indicate change in value of livestock owned by individual members of group ranches. All of the pressures which the program puts upon them are in the direction of shrinkage of herd size, and so long as prices are "controlled" at a low level, and market facilities are not improving, it is safe to predict that "value" will not "increase 30% by 1982."

With respect to quality, there appears to be an increase in quality on company/cooperative ranches. This will probably depend on price differentials between various grades of beef. However, such differentials tend to favor wealthy ranchers rather than the "low income producers" who are the target of this project.

The shrink in proportion of mature females on group ranches suggested as an indicator does not appear to be taking place, and in the judgement of the evaluation team would not be in the interest of the low-income producers on these group ranches.

3. Outputs

a. Qualified and trained staff of Kenyans to conduct range and ranch planning and implementation.

This aspect of the project seems to be going well, as described in detail in Chapter III of this report.

b. Establishment of effectively functioning credit system for the timely provision of credit and credit-related services to ranches for their development and operation.

Here the assumptions are again subject to question. Certainly, newly organized ranches with inexperienced management and no herd would need credit. However, groups of pastoralists reorganized into group ranches would probably be much better off if any investments they made (such as in water points or cattle dips) were financed from sales. Unfortunately, the credit organizations, pressured by GOK and international donors to speed the flow of loan funds, are pressing both group and company ranches to get further in debt, under unfavorable terms, than is in their best interest.

This output, therefore, seems dysfunctional in relationship to the program goal and project purposes. Further documentation of this point is presented in Chapters III and IV.

c. Improvement of Kenyan range management training institutions offering programs applicable to grazing block and ranch management.

By the indicators suggested in the Log Frame, this aspect of the total program seems to be going well. Since AID is supporting these institutions through other projects, beyond the terms of reference of this evaluation team, no further comments are made here.

d. Development of Grazing Blocks.

In terms of verifiable indicators, the comparison of the present situation with goals for 1982 is as follows:

<u>Item</u>	<u>Goal</u>	<u>Present Situation</u> (estimated)
Large Reservoirs	45	26*
Medium Reservoirs	24	34*
Small Reservoirs	160	42*
Boreholes (assume this means with working pump)	37	1
Miles of track	5,000	2,600

*Many pans are silted in, some completely. See Section B of this chapter

e. Establishment of service and maintenance facilities for Project equipment.

As mentioned in Chapter III, the evidence indicated that neither the maintenance capability at Wajir nor the spare parts logistics system were established in 1976. Further, these two verifiable indicators had not been achieved by August of 1979.

f. Complete Meat Processing Study.

This study was in fact carried out between September 1976 and March 1977, and the draft Final Report was presented to the Government of Kenya on March 10, 1977. The GOK does not seem, however, to have "reformulated policy consistent with study recommendations." Five of the seven major recommendations of that study do not seem to have been implemented.

g. Development of Ranches.

The development goals for 1982 were close to being achieved by August of 1979, as indicated by the following table:

<u>Item</u>	<u>Goal</u>	<u>Present Situation</u>
Group Ranches	60	50
Company/Cooperative Ranches	21	21
Commercial Ranches	100	not ascertained

h. Land Use Study.

According to AID/Nairobi officials, no study of land use was done as part of this project because AID sponsored another pre-investment study on Arid and Semi-Arid Lands, which has resulted in a new AID project.

4. Inputs

Inputs have both quantitative and qualitative dimensions. The Capital Assistance Loan can be evaluated on the basis of cash flow. According to information provided to this team, the following schedule of disbursements has been carried out as indicated:

<u>Item</u>	<u>Goal</u>	<u>Present Situation</u> (disbursed by 2 July 1978)
Livestock Credit	3.1 million	1,089,000
N.E.P. Development	9.55 million	6,475,852
Meat Study	.2 million	118,000

For Technical Assistance, Participant Training, and Commodities, the qualitative dimension is more significant than the quantitative. Both are covered in detail in Chapter III of this document.

Assumptions that "required technicians would be available", that "qualified participants would be nominated on a timely basis", and that "required commodities would be available on a timely basis" all seem to have been unwarranted.

5. General assumptions in question

In addition to the assumptions questioned in the previous section, there are many other assumptions which underlie this project that should be tested. Some require extensive research. Others require some years of experience for testing. Below is a list of such assumptions which seem to form a basis for project design.

Experience has demonstrated that a few of these assumptions were sound. The same experience has demonstrated that other assumptions were unwarranted. And some other assumptions remain in question. Following each of the assumptions on the list below is a judgement made by the evaluation team on the basis of this evaluation.

A.1. Pastoralists in the NEP are on a cash economy, or will be likely to enter a cash economy, rather than basically recycle about 90% of their materials and energy, and subsist. (Questionable)

A.2. There is pasture available which is often not used because it is in a location where water for animals is not available. (Sound)

A.3. If water points for animals are put in those areas, more grazing will be available. (Sound)

A.4. If such additional grazing land were made available to pastoralists, they would expand herd sizes. (Questionable)

A.5. If pastoralists expanded herd sizes, they would be willing to sell immature animals to others for fattening. (Questionable)

A.6. Pastoralists will be willing to cooperate with one another and with MOA personnel to reserve some pastures for drought periods, and for regular rest periods if water is guaranteed. (Sound)

A.7. Prices will be sufficiently attractive to cause pastoralists in the NEP to sell immature animals. (Questionable)

A.8. If increased grazing attracts pastoralists from outside "developed" blocks, organized group action by "resident" pastoralists within these blocks would cause them to convince outsiders not to come in. (Questionable)

A.9. More certain water and more available grazing will encourage pastoralists to confine their movements to known and manageable blocks. (Questionable)

A.10. Periodic drought will not reduce herd size so drastically that offtake of immature animals will be interrupted for periods of as much as three to four years. (Unwarranted)

A.11. Teams of GOK staff and AID technicians could plan and construct water sources in the NEP. (Questionable)

A.12. AID can recruit experienced competent professionals through PASA and OPEX arrangements in a timely manner and post them in the NEP. (Questionable)

A.13. Logistic support for construction and maintenance of dams, pans, and boreholes will be provided in the NEP. (Unwarranted)

A.14. Pans and dams can be built with heavy U.S. manufactured earth moving equipment according to appropriate specifications. (Sound)

A.15. Such equipment will be maintained in remote locations in the NEP. (Unwarranted)

- A.16. Pans and reservoirs will be maintained (silt removed) in such a way that they can be kept at least one-half of capacity. (Unwarranted)
- A.17. US-made equipment can be purchased by GOK and delivered in Nairobi in a timely manner, and in accordance with actual field needs. (Unwarranted)
- A.18. US-made water pumps can be delivered in working condition, installed, and maintained by GOK staff and AID technicians in remote locations in the NEP. (Unwarranted)
- A.19. US-made electric generator sets, powered by diesel fuel, can be delivered, installed, and maintained by GOK staff and AID technicians in remote locations in the NEP. (Unwarranted)
- A.20. US-made motor vehicles can be delivered, operated, and maintained by GOK staff and AID technicians in remote locations in the NEP. (Unwarranted)
- A.21. Pastoralists or GOK can and will supply diesel fuel for operation of pumps or electric generator sets. (Questionable)
- A.22. Pump operators can and will be recruited, trained, supervised, and coordinated in such a way as to supply water in accordance with range management staff direction. (Questionable)
- A.23. MOA will be able to place range management staff in the areas who can win confidence of pastoralists and collaborate with them in managed and disciplined grazing patterns. (Questionable)
- A.24. Organized monitoring of livestock movements and prices will provide accurate and timely management information to the system. (Unwarranted)
- A.25. Pastoralists who keep cattle for milking purposes, and who consume that milk for subsistence purposes, will be willing to raise large numbers of male calves. (Questionable)
- A.26. Pastoralists who normally herd camels, sheep, goats, donkeys, and cattle would be willing and able to adopt patterns of grazing and marketing designed for cattle. (Questionable)
- A.27. The marketing organizations will be able to purchase immature steers in the NEP, pass them through GOK veterinary inspection and quarantine, and then transport them to ranchers in Southern Kenya in sufficient numbers that ranchers would have a constant supply of immatures for feeding. (Unwarranted)

A.28. Ranches will have adequate management to buy and sell animals to maximize available grazing and operate at a profit. (Questionable)

A.29. Prices for fattened cattle will move with the general price level changes at the same rate and direction as prices of immature cattle purchased for feeding. (Unwarranted)

A.30. Ranchers will be able to provide at least 20% equity in borrowing for ranch development. (Unwarranted)

A.31. Many will have basic infrastructure (watering, dipping, housing, etc., facilities) on the ranch, and will use borrowed funds for incremental improvements. (Unwarranted)

A.32. Competent ranch managers will be available, and ranch operators will be willing and able to employ them. (Unwarranted)

A.33. Pastoralists in the Southern Rift Valley area are on a cash economy, or will be likely to enter a cash economy, rather than basically recycle their materials and energy, and subsist. (Unwarranted)

A.34. Pastoralists who normally move over a larger area in order to find grazing and water for their animals, and to maintain a safe distance from certain wildlife, will be able to manage on smaller allocations of land in group ranches. (Questionable)

Without going into excessive detail here, even if the "questionable" assumptions are ignored, there are sufficient "unwarranted" assumptions to support the position that the project design, in general, is weak. Review of such particular unwarranted assumptions as A.10., A.13., A.16., A.18., A.20., and A.24. demonstrates that while the basic biological phenomena upon which the project was designed were appropriately considered, there are other problems. As with so many other international development assistance projects, the professional core phenomena are always surrounded by a "human" set of constraints on both donor and recipient side. And these are always encased in "cultural" constraints. Further, there are always "administrative" arrangements on both sides, which constrain program activity, as well as "political" and "diplomatic" situations in which all of the rest are located. Evidentially both original project design and the earlier evaluations have tended to emphasize the biological phenomena, and to discount the human, cultural, administrative, political, and diplomatic aspects. (See Annex 3, Item 3, Chapter 3)

6. Organization for Operations

This project suffers from an excess of donor agencies and an excess of different units within the GOK which are involved. For most such international projects, the greater the number of donor agencies, the smaller the chance of eventual success. The same may be said for host country units.

When the project was originally designed, the Range Water Section was part of the MOA. Later the new Ministry of Water Development was formed, and the Range Water Section became part of it. This small change has evidently had serious consequences for the project.

On the loan side, with funds coming from several donor agencies, each expecting somewhat different response from Kenyan counterparts, there have been similar problems. For example, officers of the AFC seem to have felt pressure from various donor agencies to promote larger loans to group and company ranches. In some cases, as discussed below, it may not have been in the interest of those ranchers to have loans at all.

Further, there is a problem of timing. The GOK has its five-year plans, and the donor agencies have their projects divided into similar short time-frames. However, the pastoralists of Kenya have been following patterns which fit their ecosystems, and have provided for human survival for many generations. The expected rates of change in the project design are too short, while the organizational complexity militates against long-term planning and gradual change.

To add to the organizational problem, the placement of AID-supplied technicians within GOK units has not worked well. There is lack of mutual expectation regarding both the particular duties and responsibilities of individuals, and their lines of accountability, reporting, and discipline. This is discussed in Chapter III, with respect to AID. On the GOK side, increased coordination is also indicated.

The Project Coordination Unit is reported to be weak and ineffective. Unless such a body has sufficient administrative and policy clout to control action in the various ministerial branches and sections involved, coordination tends to be absent. A weak unit must rely on voluntary cooperation, and the history of this project demonstrates the inadequacy of such an arrangement.

There are several ways to achieve coordination. It may be possible by having the chairmanship of the Policy Coordination Unit at the highest levels of Government, so that the chairman

may exert pressure on the various Ministers, Permanent Secretaries, and Directors involved. An alternative is to place all of the functions involved in one organization, with one head, one line of command, and one system of finance, procurement, personnel management, etc. For the NRRD Project, this would include such functions as technical advice and planning of range and ranch programs; design, installation, and maintenance of water supplies; such marketing aspects as buying, selling, transporting, and assembly of livestock; and data collection, analysis, and reporting to provide central monitoring of all aspects of the work. If these functions were grouped, it could be that outside agencies might provide veterinary and financial services without being part of the one central unit.

The "one" organization might be a branch of one of the present ministries, or it might be some kind of a special authority. It could even be a parastatal body.

In addition to the need for coordination, it is likely that the total number and seniority of personnel required to make such a major technical project succeed will be larger than the numbers now deployed. Present GOK staff is unable to cope with supply management, maintenance, and supervision of the mammoth water development operations in the NEP; and those attempting to serve as ranch managers, grazing block managers, and advisors, trainers, and supervisors of such personnel lack the local languages, and lack the professional experience to give them credibility with their clientele.

Appropriate staffing of such operations will take time, money, and a vigorous searching and recruitment program, supported by continuous training. More important, perhaps, it will take a degree of decentralization which promotes local creativity and the application of that knowledge which can only be had locally to be utilized locally. Delays caused by excessive centralization of decision making continuously frustrate this project. That includes everything from the lack of authority to purchase small items to the freedom to use hand pumps for shallow wells where these are more likely to serve project objectives than large scale, imported, deep-well submersible electric pumps.

It also includes the flexibility to quickly support goat production when local conditions so indicate, to develop appropriate marketing schemes for camels, or to invest in hand sprayers for tick control instead of large scale dips when the local situation is appropriate.

Just how the GOK should organize itself to achieve a unitary line of command, in order to gain coordination, cooperation and control; while at the same time being sufficiently decentralized to stimulate local responsiveness to

local situations, is beyond the scope of this evaluation. Some suggestions are made elsewhere in this document. However, in principle, projects designed to enhance rural life are most likely to succeed when those directly affected by such projects are in control of the programs and of the personnel. When local people decide what goals to seek, how to seek them, and who shall do the work, their probability of success is high. When outsiders make these decisions on the basis of their judgements of what will be "good for them", the projects usually fail. Whether or not this principle applies to company ranches, group ranches, and grazing blocks is for the GOK to decide.

7. Livestock and Meat Production Increase Assumptions

To test the assumption that livestock and meat production can be increased relative to population growth and available resources, we must first consider the environment, especially rainfall, the state of technology in animal production, present transportation routes and facilities, the distribution system, marketing outlets and consumer income.

From a number of studies made during the past decade, it has been determined that the demand for meat, especially beef, has accelerated, and all indications are that demand will continue to rise in the years to come. (See Annex 18, Items 8 and 64.)

The rate of increase in the Kenyan population has been given as anywhere between 3.3% and 4% per annum. Thus, along with the rising consumer income and buying power, it would appear, that the taste for beef and other meats would advance considerably. (See Annex 18, Item 23.)

However, there are a number of problems to be faced in the production of red meats for the Kenyan populace which will have a noticeable effect on whether the country has the capability to meet this desire for further growth in the livestock industry.

A large part of Kenya is arid or semi-arid rangeland. In the remainder of the country, even where endowed with high quality agricultural land, crop production rather than animal husbandry will continue, as it is far more financially rewarding to grow grain, vegetables and fruit there. This is especially the case where population pressures on the land are noticeably on the increase and the demand for individual ownership of small plots of land are increasing.

The country's rangeland in the North, North East and South Coastal area, as well as the region along the southern border, were logical choices for livestock production. Animal offtake

from the Eastern and North Eastern Provinces, specifically immature steers for fattening on the company and commercial ranches, and to a lesser extent the group ranches, was one of the bases for initiating the NRRD livestock project.

Low rainfall and the effects of diseases are major limitations on increasing livestock numbers. Unfortunately, the ranch areas are subject to drought and periods of low intermittent rainfall. At the same time such events are likely to occur in the North and North East, causing wide undulations in cattle numbers coming to market.

Facilities for slaughter will be strained during times of severe drought, and the quality of animals coming off sun-scorched and devastated pastures will be low and devoid of fat and proper muscling.

The distances from urban processing or consuming centers to these remote areas of the country are long. The roads are mostly unpaved, rough and generally unfavorable for trucking livestock. Trekking from these regions to places of slaughter is particularly difficult due to a dearth of watering points and rest areas along the way.

Present range management or livestock production technology has not been able to deliver an optimum ecosystem composed of highly nutritious and palatable grasses and other forage to maximize livestock production in any of the areas discussed here.

Any attempt to increase the stocking rate of animals on range under present conditions will only cause an increase in range deterioration, now or in the foreseeable future. Any possible increase in meat and livestock production will only come about when death losses from disease and drought are reduced, and more efficient use of feed and forage supplies is brought about. Therefore, the assumption that Kenya can increase livestock numbers and the aggregate production of meat, especially beef, does not appear to be valid at this time.

In the 1963-73 decade there were numerous studies and reports which indicated large export market potentials for bovine meat and they indicated that one of the best prospects for increasing Kenyan agricultural production and exports was likely to be achieved through increasing production and exports of bovine meat and meat products (this includes chilled and frozen beef, canned beef, meat extracts, etc.)

In this 1963-73 period there were some studies on dairy cattle and dairy products as well as pig and pig products but

there seems to have been little or no emphasis on the studies of relative demand for meats from sheep and goat and the relative efficiencies and potentials for increasing meat production from sheep and goats and nothing seems to have been done in respect to camels although they are important in the northern parts of Kenya.

The program for increasing beef cattle production was divided into three main component parts. They were: range areas, ranches, and intensive feedlot feeding. The range program in the NEP is discussed Section B, below, and the ranch program is covered in Section C. The feedlot project was started in 1968 with U.N. assistance at Ganet (near Nakuru). The project was based on intensive feeding with local feed-stuffs. According to Lijoodi, twelve such feedlots were established in the 1970 - 1974 period (See Annex I8, Item 25). On the basis of present developments and trends, feedlots are not expected to have much impact on livestock production in Kenya.

8. Rationale for the livestock development plan and the movement of feeder (immature) cattle from ranges to ranches for grass fattening.

The overall objectives of the Kenyan Livestock Development Plan are to increase livestock production (mainly cattle), supply more meat for Kenyan consumption and increase meat exports. The plan is based on (1) increasing livestock numbers (mainly cattle) in the northern range areas primarily through the development of more watering sources and rotational grazing within blocks; (2) the movement of immatures from the range areas to newly established ranches (mainly company and cooperative ranches in the Coast Province); and (3) the establishment of group ranches, primarily in Masai areas of the Rift Valley on which additional watering places and dips are to be established.

A major aspect and integral part of the plan for ranches, especially the company type ranches in the Coast Province, is based to a considerable extent on purchasing immatures from the northern range areas for grass fattening and then selling them for slaughter. There is a major problem in estimating how many immature cattle are actually needed by the ranchers and how many can be obtained from the Northern range areas. The evaluation team visited the Coast Province, Rift Valley and Northeastern Province but did not visit the Eastern Province and thus did not observe any of the Borana, Rendille, Samburi, and Turkana areas.

As of August 31, 1979 the LMD reported that they had purchased 14,000 immature cattle and 11,632 head of other cattle. If these percentage compositions continue, LMD may purchase only about 16,000 or 17,000 immatures and a total of about 35,000 to 37,000 head of total cattle. We have no information on purchases by others.

The LMD has been paying 2.80 Shs. per Kg., but we consider 2.80 Shs. for immatures to be too low and hope that the buying prices will be permitted to rise.

The Coast Province rancher seems to obtain a greater margin of return for holding the animals for six months than the NEP pastoralists do for raising them over a 3.0 to 3.5 year period. And this is despite the heavy losses which pastoralists take in that long period as a result of diseases, predators, and severe droughts once in every five to seven years period.

Like all other areas of Kenya visited, the NEP pastoralists want more water and desire to increase the size of their herds. On the basis of the evaluation team's visit, we believe that with the present and increasing levels of wildlife, the present numbers of cattle, sheep, goats, camels, and donkeys should not increase. Overgrazing and desertification have been mentioned above as a real danger.

Pastoralists have surplus sheep, goats, and camels for sale, and have asked that markets be found for them. We urge that this be done as there is a large and profitable demand for such live animals in nearby Arab countries.

a. Estimates of Coast ranch needs for purchased immatures

We noticed from the July 12, 1979 unpublished report of Mrs. Judy White (Annex B, Item 71) projected needs for immature cattle for Coast Province for 1979-82 are as indicated below:

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
No. ranches ^{1/}	12	17	19	19
No. immatures needed	17,500	33,300	36,200	39,900
Ranches visited by AID evaluation team Aug. 1979	9	9	9	9
No. immatures needed	10,200	14,800	14,700	14,000

^{1/} Excludes Mkuki ranch.

In respect to the development of larger cow-calf herds on the ranches and limited demand for purchasing immatures, the evaluation team can only express views on the nine ranches visited.

(1) All of the Coast Province ranches visited planned significant increases in their breeding herds and a number already has bred heifers equivalent to more than 25 to 50 percent or more of their mature cows, plus significant numbers of female calves and heifers 1.0 to 2.0 years old.

(2) In addition these ranches wish to substantially increase numbers of goats from present levels.

We believe that both of these developments are desirable and should be encouraged by GOK. However it should be taken into account in projecting future demand for immatures on Coast Province Ranches.

A preliminary examination of the IBRD model for company ranches seems to indicate that they were intended to be primarily cow-calf (steers raised to 3 or 4 years) operations, with no more than 15 to 20 percent of the steers to be sold in any one year to be those purchased as immatures. This does not seem to be the view of AFC nor RMB officers in the Ministry of Agriculture. They seem to plan on relying more heavily on purchases of immatures from Northern rangelands with a short (6 months to 1 year) period of grass fattening on the ranches.

b. Depending on Northern rangeland for immatures

Ranching based entirely or mainly, on the purchase of immatures from Northern rangelands and grass fattening them on the ranches is a very risky business.

A long term ranch fattening program should not be based primarily on the purchase of immatures from the arid or semi-arid range areas (mainly in the Northern part of Kenya). The adverse effects of drought years and two to four post drought years on the availability of immatures for sale from such dry range areas must be taken into account in planning ranching operations.

The high risk factor of relying mainly on purchasing immatures from the semi arid Northern rangeland results from the fact that rainfall in the north is erratic and very severe droughts occur periodically (apparently on the average of about once in every 5 or 6 years). These weather patterns tend to

cover, at the same time, both the northern range areas (suppliers of immatures) and the ranch areas which purchase immatures from these rangelands. When there is a severe drought for either one year or in certain periods two consecutive years, the pastoralists may be forced to sell a higher than normal proportion of animals. However, this is the very time when the grass and water on ranches will not permit the ranchers to buy even the normal number of animals. (In the severe 1974-76 drought the LMD had to hold large numbers purchased from rangelands which ranchers could not absorb.)

For a detailed analysis of this problem, see Chapter IV.

9. Price assumptions and the effect of prices for bovine meat and cattle

The original analyses for ranch planning were made on the basis of earlier Cost-Price relationships. Since that time the costs of livestock production input factors have risen more rapidly than have the prices of cattle sold. Controlled beef prices have been reflected in low prices for live cattle.

In the 1968-73 period the levels of cattle prices clearly have not encouraged cattle production and the sale of animals. The effects are not only noticeable in the case of pastoralists, but particularly in respect to new ranches (especially company-type ranches) where large capital development loans and heavy interest payments (on both capital improvements and cattle purchases) are required. In addition, the setbacks resulting from the severe 1974-76 drought have accentuated the adverse financial situation of cattle producers, especially ranchers with large loans.

It is absolutely necessary for the longer run development of the cattle industry to let prices rise sufficiently to attract the capital needed by producers and enable them to repay loans plus interest charges with sufficient margins of profit remaining -- if cattle production is to compete with other types of enterprises for the resources needed in the effort to try to meet the rising demand for beef. We do not believe that the current cost-price and net returns situation is adequate to expand cattle production, especially for company-type ranches.

Nearly every evaluation effort by IBRD, AID, and others has indicated the need to let cattle prices rise and seek their own levels through the equilibrium of supply and demand. On

several occasions the GOK has apparently agreed to such evaluation policy recommendations in respect to cattle price increases.

Price controls on bovine meat have recently been relaxed some. However, prices are still artificially low. These low beef prices are of benefit mainly to urban consumers and workers whose incomes and standards of living recently seem to have been rising more rapidly than have the incomes of pastoralists or ranchers (if the latter have improved in real terms at all in the 1972-78 period). Everyone is well aware of the serious problems caused by inflation, but we think that it is important that all sectors be treated equitably if balanced development is to be achieved -- and the desire to increase beef production to meet demand is to have a chance of success.

With the rapidly increasing population of Kenya the per capita supply of beef is likely to decline, in any event. Artificially low beef prices only encourage consumption of this type of meat and thus would appear likely to make it more difficult for consumers to adjust to any decrease in per capita supplies of beef (without resorting to imports).

RECOMMENDATION: In the absence of prompt action by the GOK to permit the necessary increases in cattle prices we frankly doubt that AID funds should continue to be made available for either range water development or the purchase of cattle for ranches.

10. Lack of Analyses and Prior Research for Project Design and Implementation

The Livestock Development Plan seems to have been made without prior analyses in respect to important alternatives for production and marketing of livestock.

a. Sheep and goats

Although they are important sources of meat and skins in Kenya, there seems to have been no prior analyses in reference to the increasing demand and ways of efficiently increasing production and marketing of sheep and goats to meet such demand. Likewise, although there are large nearby export markets for such animals there seems to have been no analysis.

b. Camels

Camels are important in the northern drier areas of Kenya. There is a large demand for live camels and camel meat

in nearby Arab countries. There seems to have been no prior analysis of potentials for the production and marketing of camels and camel meat.

c. Bovine meat

(1) There seems to have been virtually no prior analysis on the composition of pastoralists cattle herds and the reasons for their composition especially in reference to the small proportion of immature males.

(2) There does not seem to have been prior research on the likely or expected production responses by pastoralists to prices or price changes.

(3) Likewise there seems to have been no prior research or evaluation on the expected effects of prices on the pastoralists response to sale of animals.

(4) We have not seen any prior research on the demand for live cattle by nearby countries, but it is known to be large.

(5) There does not seem to have been any (or at least no significant) research on either the potential demand or production potential for veal, nor the possible effects of increasing production on producer incomes. Production potentials might be significantly increased especially in the central higher elevation and dairy areas and possibly the NEP (and perhaps in certain other pastoral areas) where a significant percentage of bull calves are killed, particularly in dry periods.

(6) There seems to be no studies or analyses of possible successful management systems for group ranches, but it is obvious that if they are to be successful there will need to be major changes in the traditional management systems employed by individual group members. It seems clear that group members want titles to land and they want more water supplies and dips, but there does not seem to have been sufficient discussion and studies of feasible methods or systems for

improving herd management and encouraging the sales or offtake of animals, particularly male calves and steers.

These are (or should be) of keen interest to both AID and GOK as they have (or could have) significant influence on production, sales, exports and incomes of pastoralists and other producers (the main objectives of the project).

RECOMMENDATION: The need for analysis and the usefulness of results of research listed above would seem to be of prime importance to GOK, AID and IBRD as they would have significant influence on the movement of immatures, from rangelands to ranches --- and this is a crucial aspect of most of the livestock development project and loan program.

11. Assumptions of training

One of the assumptions which seems to have been made at the time the project was designed was that young people from non-nomadic backgrounds, whose practical experience with livestock handling was limited to courses at Egerton College, AHITI, the University of Nairobi, or training at a U.S. university, and without language skills in either Masai or Somali, would qualify to successfully teach pastoralists how to increase their incomes, and provide access to Government health, education, and other social services. This assumption is questionable.

Another assumption in training Kenyans for work in the drier areas of the country was that "the US possesses a particular expertise in livestock production" suitable for those areas. This assumption may be questionable.

When the evaluation team visited the commercial and group ranches, as well as the NEP it observed some problems which faced these young range officers. One was the inability to communicate adequately with the pastoralists.

The range officers seemed to know the botanical names of a great variety of range plants and appeared to be well versed in US-type range management techniques. However, that "particular expertise in livestock that the US possesses" (Annex 18, Item 63 Page 6) somehow failed to transfer.

Perhaps the assumption that a non-pastoralist could effectively translate the objectives of the project into a measurable and welcome response from the nomadic peoples and bring a change to their lifestyle was unwarranted.

Another questionable assumption in the training of Kenyans for the project was that they would want to serve in remote areas of the country after their commitment to GOK had been fulfilled. Likewise, the assumption that "training in Rural Sociology after Range Management training so as to enable the Range officers to see the whole ecosystem composed of the livestock, the vegetation and the people who herd the livestock" was not apparently brought to fruition. (see Annex 18, Item 36)

12. Marketing Assumptions

The overall assumptions of the NRRD project are to increase production and exports and these are confined only to cattle and bovine meat. It is the expressed intent that in the case of increased production of immatures in Northern rangelands a high priority is to purchase these immatures for sale primarily to the ranches for grass fattening and then sale for slaughter. The AFD livestock loans are specified for the purchase of cattle for stocking the ranches.

The project assumed and specified that AFC would administer the funds for capital improvements and the purchase of cattle for stocking ranches.

The project plan did not cover any specific components for the marketing of sheep, goats, camels and donkeys, but in mid-1979 it was suggested that livestock loans could be used for purchasing sheep and goats to stock ranches. Unfortunately there seems to have been no specific plan for a general improvement of marketing or provision and use of improved marketing facilities and systems of pricing designed to increase offtake and improve producer incomes.

a. No live animal exports

There is a law against the export of live animals even though there is a large nearby market for live cattle, sheep, goats, and camels, and a keen demand at prices higher than those prevailing in Kenya.

There is a surplus of cattle, sheep, and goats, and overstocking on most group ranches, but there does not seem to have been any major effort to prepare the pastoralists for selling more animals nor for a pricing policy or improved marketing facilities for destocking and increasing the related percentage of offtake.

b. Lack of Analysis

Prior to the initiation of the NRRD Project there seems to have been little or no research or analysis of pastoralists herd composition, their expected production and sales responses to prices, or the need and location of marketing facilities. No research or analyses seems to have been made on the probable future demand for sheep and goat meat, or the prospects for increasing the production and marketing of these animals, or indeed the possibilities of stocking new ranches with better breeding stock.

B. The Range Program of the North Eastern Province

The rangeland of the North Eastern Province consists, generally of semi-desert ecological conditions; a dry and harsh landscape of wooded and brushy grassland with some bush and shrub thicket; extremely high temperatures; desiccating winds, dust and widely distributed vegetation. Some areas have experienced as many as twenty years of below average rainfall. Rain storms may vary from very light to very heavy, with the latter occasionally causing flash flooding, and in most instances widely scattered and usually on a narrow front of from five to ten miles. During the wet season some places may even get two or more rains.

The area is bounded on the east by Somalia, the north by Ethiopia, the west by the Eastern and Coastal Provinces of Kenya, and on the south by the Coastal Province of Kenya. The equator runs through the Province. It is an area of approximately 400 by 100 miles in size. It is roughly rectangular in shape, 400 miles in length, in a north-south direction (extending from 2 degrees S. to 4 degrees N. latitude) and 100 miles wide and east-west direction, mainly between 39 and 41 degrees east.

This is a very large land area of about 126,902 square kilometers, 31.3 million acres or about 21% of the total land area of Kenya. The elevation is mainly between 600 and 1600 feet. The area is mainly flat except it is hilly or mountainous in the Northeast part of the Province.

Approximately 60 to 65% of the area of the Province (the Northeastern part) has average rainfall of less than 10 inches. About 30 to 35% of the Province (the Eastern part) has an average rainfall of 10 to 20 inches, and a narrow strip along the Southern border of the Province (perhaps 3 or 4% of the area) has over 20 inches of rainfall.

January, February, and March are the hottest months of the year with daily maximum temperatures exceeding 100 degrees Fahrenheit, whereas the cooler months may enjoy maximum daily temperatures of from 75 degrees to 85 degrees F.

This zone includes extensive lava fields, red desert sands, recent historically laid alluvium deposits and some large flood plains which collect water during the wet season and which are the principal sources of water for all animal life in the area.

On the sites where the ground is very hard and somewhat impervious to water, most of the rainfall received will not penetrate the soil, but run off quickly. Vegetation thereon is sparse or non-existent. However, in the natural depressions where the top soil is heavier and more retentive of moisture, grasses and shrubs will grow, but in too many cases the grass will be crowded out by a thicket of thorny shrubs.

Heavy grazing will kill the tufted perennial grasses leaving some of the stolon types and certain annuals. If this practice of overgrazing is continued for several years the only grasses remaining will be those annuals whose life span from seed to maturity and seed production covers only a relatively short span, thus leaving the range without grass cover and subject to the infestation of undesirable shrubs and small thorn trees.

Land use, therefore, is determined by the amount of rainfall received, its distribution and the season of the year. The areas which can be grazed only in the wet season far exceed those which can be grazed during the dry season. Trekking to the wet season areas can only be done when the herds have access to drinking water along the way. If there is little or no rainfall during what would normally be the wet season, these pastures will go unused. Those pastures in which there is water from streams, springs, reservoirs and boreholes (wells) will normally be saved for that time when there is no rain to make the grass grow.

The availability of grass and browse, therefore, determines the number of animals a given area can support. Water determines how and when the forage will be used and the assumption that many additional reservoirs or boreholes will increase the carrying capacity of a range should be seen as fallacious.

When animals have access to water in every grazing block, then management control is necessary to keep the nomads from adding to the size of their herds, thereby increasing the pressure on the growth of forage, and to keep a reserve supply of feed and forage for the dry periods. When pans or boreholes are too close together, trampling by the animals around the watering points will destroy the range for up to several miles away depending upon the numbers of animals watered over a given period of time.

RECOMMENDATION

Water availability should be used as a measure to conserve grass for the dry season and also to conserve enough grass and forage when cyclical drought can be expected once in every six or seven years.

1. Points of view of range management - officers and pastoralists in NEP

There are two distinctly different points of view regarding the water development and general livestock development programs in the NEP. The range management officers seem to confine their thinking primarily to cattle, and their main job is to assure that increasing water is made available, better pasture management, and the registration of members of each block, as well as the collection of fees for watering stock by the pastoralists. There are various degrees of enthusiasm (or lack of it) for the GOK stated future intentions of confining graziers to a specific block. The end product is mainly to increase the offtake of immatures for sale to ranches in other areas of Kenya. These ranches grass fatten the immatures which are then sold to provide beef, mainly to the urban areas. Most of the range management officers, as well as other administrative officers in the NEP are not from pastoralist families, have not been livestock producers, seem to know relatively little about camels, sheep or goats, and they generally do not speak the Somali language.

It seems that the Range Management officers spend much of their time trying to convince pastoralists that the Range Management system learned at school is the only right way -- without exerting sufficient effort to first ascertain the views of the pastoralists and understand their system, family needs, etc.

The pastoralists' main interest in the current livestock development program is in developing more watering facilities and supplies of water. They do appreciate the newly developed water supply. Their pastoral way of life, now and for the foreseeable future, is first and foremost centered around a virtually self sufficient economy, or way-of-life, for their families and clans. The system is based on supplying cows' milk and ghee as the main form of food, with the main meat coming from goats and Persian-type sheep, with the periodic slaughter of bull calves in dry periods, primarily in order to ensure adequate milk for their families.

They purchase clothes, tea, sugar, soap, and increasing amount of posho and metal containers (although the water and milk containers are still mostly hand made of wood). They purchase or hand-make rope, grass mats, and belts for their camels.

They are very much interested not only in their cattle and their sheep and goats, but in their camels and donkeys as beasts of burden. The latter two types of animals are important as they are used for carrying water, firewood, etc. as well as for moving pastoralists' huts (manyettas). The camels are sometimes eaten, but they are so large that when they are used for slaughter they usually are sold in the larger villages. They usually slaughter the sheep, goats and calves for home use.

The men and boys usually herd the livestock and the women obtain the firewood and water and prepare the food. If the families or clans are large enough and they own enough animals, they group the cattle, sheep and goats, camels and donkeys into separate herds. The milk cows currently in-milk for family use are generally kept near the hut, or manyetta, while the dry cows, heifers, and steers may be herded in areas that are long distances from home.

The NEP pastoralists sell their animals more readily than do the Masai and this trend is steadily increasing. They are complaining that the GOK does not provide adequate marketing arrangements for sheep, goats, and camels. This is an urgent need about which we have more to say.

2. Range monitoring and range trends

The Utah State University Evaluation Team, in its report of 25 June 1975 pointed to the need for more emphasis on data accumulation for better monitoring of range conditions and especially to the lack of records on vegetation with a species list of the principal plants in each major plant community. At the time of the report the team had found no evidence of records having been made of changes in vegetation following development and implementation plans. To quote: "In view of the fact there are no well developed guides to range condition and trend for Kenya, we think it imperative that information be compiled from which they can be developed. Reference points should be established and plant inventories taken in each grazing unit in sufficient detail that reasonably good records of vegetational changes can be compiled." (see Annex B, Item 69)

Subsequently, the writers of the National Range and Ranch Development Project Paper, Revision Number 3 refer to the USU report concerning these matters on page eleven where they say; "Since the livestock Program includes two systems, the CIDA Livestock/Wildlife Monitoring Program which will be fully operational by the end of CY 1976, and an IDA - financed

monitoring program to be carried out by International Livestock Center for Africa (ILCA) which will start functioning in July 1976, it would be redundant to include within the NRRD project additional resources for such in-depth analysis. AID and other donors in particular, have had a chance to review and comment of the scope of work for ILCA. When both monitoring programs are fully operations, it is believed they will be capable of supplying the necessary data and analysis for assessing the Program's progress." (see Annex 18, Item 63)

In actuality, however, ILCA did not accept the view that it would monitor the range program and as far as as can be determined, little has been done in that regard.

After visiting a fairly large number of company and group ranches, as well as the rangeland in the North Eastern Province, it would seem that an inventory of desirable plants suitable for livestock forage should have been made by this time, or preparations for such a study projected for the near future. A bench mark from which to determine if range quality is increasing, fairly maintained or undergoing deterioration is necessary if any real trend data are to be collected. This inventory should include such items as grass cover, what species are present, plant vigor, percentage of desirable plants versus those of plants less desirable and those which cannot be considered assets in a good plan. Soil fertility, soil structure, soil type and the present extent of erosion, and rainfall permeability must also be determined.

RECOMMENDATION

If range or ranch management in Kenya is to be adequately monitored, and range condition trends made, it should be done as soon as possible. Some kind of organization or unit in the Range Management Division should be established.

Healthy range does not come about by casual observation of range conditions. Various criteria are necessary for predicting the effects of stocking rates and the kind of range strategy selected to create the optimum forage climate.

3. Relation of block size to normal movement of pastoralists

The literature describing normal movements of pastoralists in the North East Province suggest that patterns of seeking water and grazing have tended to be considerably larger than the present and planned grazing blocks. In addition to movements among districts within Kenya, it is not unusual for graziers to move into portions of Ethiopia or Somalia when scattered rainfall conditions make such movement necessary.

The grazing blocks themselves are much more limited. The first three blocks averaged 233,333 hectares each. Later plans were made for larger blocks, but the size seems to vary around 300,000 to 400,000 hectares per block.

The assumption is that when dependable water supplies are available within a particular block on a year-around basis, individual graziers will be willing to stay within that block. Actually this has not yet been tested, as water storage pans seem to silt up much more rapidly than they have been cleaned, and boreholes have not, generally, been equipped with operational pumps.

Further, there has been no means of preventing "outsiders" from entering grazing blocks when water is not available outside, but is available inside. The assumption has been that eventually all grazing blocks would have adequate water supplies, and that this problem would eventually disappear. This might be the case, but the problem of "outsiders" from beyond district, provincial, or national boundaries remains to be resolved.

Government officers have pointed out that the grazing blocks are being viewed as the principal unit for "services" to the NEP, with schools and medical facilities being organized on the same base. The feasibility of such a plan will depend on some of the ecological phenomena discussed below in Chapter VI.

RECOMMENDATION

The alternative of developing small scale water facilities such as hand pumps and windmills, to supplement the wells which are presently in use throughout the province, running from 30 to 50 feet in depth, and using simple bucket and rope techniques, is worthy of consideration.

The probability that a group of people would discourage others from sharing water tends to be much greater when that group has built the water source themselves, and themselves provide for its regular maintenance. Further, since the scale must be smaller, overgrazing tendencies may be reduced. Alternatives for government services are discussed in Chapter VII.

4. Involvement of pastoralists in the project

Project design calls for involvement of pastoralists in decision making, particularly at the block level. This involvement includes representation on grazing committees, registration of heads of households as members of particular grazing blocks, and payment of water use charges.

While committees are organized in every block, membership is split between government officers and graziers representatives. Usually, this type of committee structure, found in many parts of the world, results in government officers talking to each other while pastoralists listen. Other writers have suggested that these committees do not actually represent the graziers in the NEP (see Annex 13, Item 13). Observations that hardly any of the GOK officers speak the Somali language, that minutes of these meetings are kept in English, and that pastoralist representatives tend to be those living in the town, rather than those moving in the pastures, support the inference that involvement of the "target group" in decision making is limited.

A typical committee might have from 12 to 15 graziers. Although they tend to live in town, they own livestock, and may be owners of large numbers of animals in many herds. But the chairman of the committee is a district officer, and there are two chiefs, a block manager, a veterinary officer, the Local Authority Representative, and a religious leader.

In discussion of this problem within the NEP, and addressing the question of whether these committees are an instrument of the pastoralists or one of government-- whether the committee goal is what to do which will benefit the pastoralists most, or how to further the governments' program-- a senior local official of the Ministry of Agriculture put it this way: "Graziers have their own interests and government officers have their own interests, and it is a matter of negotiation."

The proportion of "users" registered per block seems to vary from fifteen percent to ninety percent, with the following figures appearing in the Quarterly Progress Report of the Range Management Branch for the NEP for April/June 1979: 15%, 30%, 70%, 90%, 30%, 35%, 87%, and 73%. However, it has been suggested that some graziers register in several different blocks to protect themselves against the possibility of severe drought in any particular one, and the knowledge of actual numbers of people in each block seems soft.

As for payment of water charges, this item testifies to the dedication, vigor, and competence of the block managers. Several have been able to collect water use charges from graziers even though they are not effectively adding supplementary water in the particular blocks. Given that the block managers, with few exceptions, do not speak the local language, and that they have very little to show in exchange for their money, they certainly have been effective in convincing local people about this aspect of the project.

In blocks where large dams have made successful reservoirs, which are not yet heavily silted, and therefore had water through the dry seasons, the project seems appropriately appreciated. Where boreholes have been in for over two years, and where pumps have not been installed, pastoralists have been reported to be impatient. However, recent history demonstrates that such pastoralists are not sufficiently involved to cause any action to be taken on their behalf.

5. Training at the Center at Griftu Center

The Training Center at Griftu was originally organized to train pastoralists in range management, but it has since widened its scope to include home economics and agriculture as well.

It now runs two week-long courses for pastoralists each month. Then there is another week-long course each month, and some days are reserved for seminars and for getting feed-back from former students. The teaching staff of a Principal, Assistant Range Officer, Technical Assistant, and Home Economist handled 24 courses last year, with an average of 18 students.

The students range in age from 25 to 50 years, and are recruited in various grazing blocks of the district. They are brought to the school by lorry, charged 15/= (Kenya Shillings) for the week, and receive lectures and practicals. Subjects include basic range management, advantages of rotational grazing, how to use and maintain dams, and animal husbandry (dehorning and castrating).

The Center has very few visual aides, and would like tapes and posters in Somali language. The present headmaster is a local person, with experience as a district range officer, who speaks the Somali language. He states his major achievement as supporting the grazing block program. He would like to see the teaching system improved, and some flexibility in fees, which would make recruitment of students easier.

This program seems to be a positive supplement to other aspects. Like the other aspects, however, it is apparently designed and controlled outside of the area for and on behalf of local people.

RECOMMENDATION

To the extent that local pastoralists themselves had some voice in deciding what should be taught to whom, and where and how, it might be even more effective.

RECOMMENDATION

Like other services of government for graziers, the alternative of a "moving school" which could be shifted about with the herds and offer seasonal practical learning on the spot, might have some advantages over a "center" which is established at one physical location.

6. Maintenance of pans, reservoirs, boreholes and tracks

Almost all of the pans and reservoirs visited, including those built since 1972, are showing various degrees of siltation, some of them at a very rapid rate. Extremely heavy rainfall in certain periods during the past six or seven years is responsible for the heavy silting in some of those we saw. Also, unrestricted access to the dams and sidewalls by livestock has also led to severe erosion in a large number of cases. Some of the pans were so badly damaged and filled with silt that their usefulness was no longer evident.

The catchments with silt traps or silting basins should have had the silt removed every third or fourth year, as planned, to make them effective. However, when we inquired if any pan, reservoir, or silting basin had ever been cleaned out we were told that only a few had.

Many of the tracks leading to these water points appeared to have had no maintenance for a long time, if ever. Thorn trees, deep gullies and tortuous meanderings of small water-courses had to be circumvented in order to reach our destinations. It is almost certain that no one had been to check on a number of reservoirs during the past several years, at least not by vehicle.

Several Caterpillar D-7 bulldozers, fitted with wide floatation tracks and specifically ordered for pan cleaning, are awaiting transfer from Nairobi to Wajir. However, the

evaluation team was informed that the section head of the Range Water Section at the MOWD has decided that this equipment is not suitable for the cleaning of silt from the pans and reservoirs in the North Eastern Province. The AID/PASA engineer now in Kenya says they are exceptionally well suited for silt removal.

The Caterpillar dealer, in Nairobi, will not release this equipment, we are further informed, until the Ministry pays its bills. Hence it appears as if there will be no maintenance of pans and reservoirs in NEP this year if the rainy season starts in October. The month of September would have been an ideal time to clean almost all but a few reservoirs as they were totally dry and the bulldozers and scrapers could have completed a number of them before they filled up again with water.

In flying over the area between Buna and Wajir, we could see omborehole from the air which must have been producing water, since there were animals standing at the water trough. Most of the boreholes in the area, however, were capped and not equipped with pump or generator set. Those others which were equipped were not operating for a number of reasons, such as being in need of repair, lack of parts, or other problems.

There are at least thirty "project" submersible pumps in Nairobi awaiting installation on the boreholes. But because two of them arrived in Kenya broken, the MOWD is awaiting acknowledgement for the dealer representative in Nairobi to repair the broken pumps or replace them. Contrary to AID policy provisions, the dealer, we were told, has no facilities for repair.

7. Equipment and commodities

One of the major problems encountered in moving the project toward completion and success has been that of equipment and commodities.

First of all, the International Harvester Scout pick-up truck, a fine vehicle in the right place, was a very poor choice and should not have been selected for the project in the NEP. It lacks the ruggedness and sturdiness necessary to withstand the abuse given it by the terrible road conditions, the untrained and undisciplined drivers, and the extreme overloading beyond the strenght of the springs, shackle bolts and other suspension parts. To make matters worse, the manufacturer failed to provide the parts most likely to break, but sent parts that one might think were

those that had not moved out of stateside inventory. When the spares actually needed finally arrived in Kenya, a large number of these vehicles had been deadlined, some cannibalized, and awaiting repair for over a year and a half.

Up to 75% or more of these trucks are reported to have been out of use at one time. When the evaluation team visited Garissa and Wajir, at least half of the inoperational vehicles there were American-made International Harvester Scouts. Land Rovers, Toyotas, Bedfords, and Isuzus were not without their representative wrecks either, however.

The evaluation team counted a total of nineteen I.H. Scouts out of commission. Of these, nine were at the workshop in Wajir, one at the District Commissioners' Office in Wajir, one at the training center in Griftu and eight at the District Office junkyard in Garissa.

Furthermore, the team counted seven larger IH trucks that were inoperative.

In the progress report of March 1978 the resident engineer of Wajir reported ten IH vehicles out of commission and seven others under repair.

A full list of vehicles delivered to the project could be found in the end-of-tour report by Jack C. Gunther, Jr., 24 February 1979, Annex 13).

The "friendly handshake" emblem of AID is prominently displayed on the Scouts, and seems to call attention to the fact that these representatives of U.S. technical competence did not quite live up to expectations. The symbols of U.S. benevolence ought to be removed and perhaps an auction could be held to dispose of the trucks as soon as possible.

RECOMMENDATION

Since the IH Scouts were provided as part of the loan it only seems fair that the Kenyan government not be held accountable for repayment because of the poor judgement of the procuring officer.

According to the conditions in AID contracts, American based manufacturers were to have authorized and capable dealerships in Kenya before selling items necessary for the project. Some of the U.S. manufacturers representatives here, however, seem to have been established as "order takers" and little or no attempt was made to provide parts

and service for those commodities sold in Kenya.

Two of the Crane-Deming submersible electric pumps arrived broken and the MCWD is still waiting for some satisfactory adjustment to be made by the local dealer who disclaims responsibility. The "jerrybuilt" generator sets provided by the AID-sponsored AAPC procurement agency in New York have been assembled in such a manner so that the fuel tank is impossible to fill with any kind of equipment except a small hose and nozzle. The pump attendants at the boreholes do not have such "sophisticated" equipment, but must use cans. (see Annex B, Item 9)

The main difficulties with obtaining equipment and supplies appear to stem from the complex and cumbersome systems of both AID and the Government of Kenya and will in all probability continue.

Recommendation

A streamlined system for supply management should be established for this project, or it should be limited to equipment which can be fabricated in Kenya.

3. North Eastern Province cattle numbers and the numbers of immatures available from range areas to provide feeder stock to ranches

The absence of adequate data on numbers of domestic type livestock and wildlife, particularly in the semi-arid range areas, make it very difficult to make valid analyses, projections, and conclusions. We have been unable to obtain adequate data in terms of total cattle numbers, composition of herds, numbers of immatures for sale, total numbers of animals slaughtered for home consumption, or total sold for slaughter by private butchers and KMC. The situation in regard to lack of data is even more difficult in respect to sheep, goats and camels (as well as numbers of donkeys, which eat forage even though they are not slaughtered for human consumption). It is the conclusion of the evaluation team that the numbers of cattle, sheep and goats, exceed the numbers shown by KREMU and in other government publications. We also believe that the numbers of sheep and goats, as well as bull calves killed (especially in very dry periods) for home consumption are very large. They exceed the estimated numbers we have seen in reports, especially for the North Eastern and Rift Valley rangelands.

While block managers in the NEP are trying to count the numbers of domestic livestock, the results seen to date leave much to be desired.

We do not underestimate the difficulty of obtaining reasonable accurate figures where pastoralists move their livestock, and where watering fees are charged per head. One would expect numbers to be underestimated. However, it is essential that a better system be developed and be reported regularly.

9. NEP supplies of immature steers

There are many reasons for the cattle herds being composed mostly of cows and heifers and with a very low proportion of immature steers from 2 to 3.5 years of age. The reasons are as follows:

- a) large numbers of cows and bred heifers are required to assure an ample supply of milk for family members. About 9 cows and bred heifers are required per person for this purpose.
- b) The pastoralists in NEP mainly use sheep and goats for their family meat supplies but they kill bull calves, especially in dry periods (sometimes 60% or more) in order to assure the maximum availability of milk for their families.
- c) In the past (prior to 1978) the low prices received per steer and the annual percentage losses from diseases and predators were not sufficient to induce pastoralists to make the effort to increase the production of 2 to 3.5 year old steers.

After a short but intensive study of the NEP in August 1979 the evaluation team considers the figures of Mrs. Judy White to be too high. (see Annex B, Item 71) Mrs. White's figures show 16-17 percent of the herds being males over 1 year old with this percentage falling sharply in times of severe drought.

Mr. H.A. Morowa, Acting Provincial Range Officer of NEP, did a check in 1974-75 in Madogashe East and West Blocks and found that 71 percent of the herd was females 2 years or older, 1 to 4 percent were bulls, 12 percent were calves 1 year or younger, 9 percent were heifers and steers 1-2 years old, and only 2 percent were steers 2 years or older. We do not know whether or not this count was done under normal conditions or just after a sale which might have included a high proportion of immatures.

We believe that the current (Aug 1979) percentage of NEP immature steers, 1 to 3.5 years of age, is only 5 to 7 percent of the herd composition. Of course, LMD figures show that they had 12,000 to 15,000 immatures in the January-August period of 1979. In any case, we do not believe, under 1978-1979 conditions, that more than 7 or 8% of the herds are 1 to 3.5 year immature steers.

Table 1 - Estimates given in August, 1979 by a pastoralist in Kalalut Block NEP of the number of cows required to meet the milk needs of pastoralist families of specified sizes.

<u>Category of females and period of year</u>	<u>Family of 10 members Estimated</u>	<u>Family of 8 members Estimated</u>
Total cows and bred heifers (both dry cows required and those in milk required to assure an adequate family supply of milk)	90	54
Cows in milk required in flush period for producing family milk needs	23	13
Cows in milk required in dry period for producing family milk needed	37	22

Even with these numbers of cows, the pastoralists reported that they may be short of milk in the dry season and have to purchase maize meal or other foods to meet family needs.

10. Slaughter for family meat needs

The pastoralists in the NEP usually slaughter sheep and goats to provide most of their meat needs but they also slaughter bull calves for their own consumption. In dry periods they may slaughter 60% or more of the bull calves so that their families will have sufficient milk to meet their absolute minimum milk needs. This is the main reason that such a low percentage of immature steers are available for sale to ranchers outside the area.

The high disease risk and annual losses over time plus the very low prices offered for immatures in the past do not provide the incentive for pastoralists to raise all of their bull calves to the 1 to 3.5 year ages.

11. Marketing of Livestock from the North East Province

To date nearly all of the GOK emphasis is on the marketing of cattle, and the purchase of immatures for stocking newly established ranches has been their primary concern.

There is a large and important local slaughter of sheep and goats for consumption by pastoralists and villages in the NEP. The NEP reported sale of hides and skins in 1977 is a rough gauge of relative local slaughter by type of animal: 253,068 sheep and goat skins, 2,967 cattle hides and 819 camel skins, excluding those purchased from Somalia and Ethiopia.

There is an additional surplus of sheep, goats, and camels in the NEP, and pastoralists indicated to the evaluation team in that they wished to sell these animals. Coast ranches wish to buy NEP goats for breeding herds. LMD informed us that it cannot pay the prices asked by NEP producers and sell the animals to Nairobi, EMC or other butchers here at a profit. On the other hand, there is a large demand for live animals of these types (as well as live cattle) by nearby Arab states. In the event that they cannot be readily sold in Kenya, it seems advisable that authority be given to sell them for live exports. We fear that unless something is done, the rapidly increasing numbers of these animals in the NEP will contribute to serious overgrazing in the province. On September 3, 1979, Mr. A. M. Matai, Chief of LMB indicated that a trader had asked for an arrangement to export 10,000 head of sheep and goats and 1,000 camels immediately to nearby Arab countries. The Chief of LMD informed us that he had requested GOK authority to export.

Any marketing system for the NEP must take into account the following:

1. The presence of price controls on beef (except higher priced cuts).
2. The long distances (especially from the central and northern parts of the NEP) to the Coast Province ranches, as well as to the largest meat consuming areas of Nairobi and Mombasa.
3. The poor condition of NEP roads.

4. The flooding of the Lorian Swamp which cuts the main road routes in the rainy seasons, and lack of sufficient water along trekking routes for movement of cattle in the dry periods from August to October.
5. The disease problems and quarantines as well as disease contamination on trekking routes.
6. Nearness of Somalia and Ethiopia to the main livestock producing areas.
7. The demand from the nearby Arab countries for live cattle, sheep, goats and camels, and finally,
8. The periodic severe droughts which require prior well-organized emergency or crisis marketing and movement of livestock.

Presently, most of the cattle purchased by LMD in the NEP are trekked to their destinations--either to ranches (mostly to the Coast Province) in the case of immatures, or KMC for matures slaughter.

There are stringent constraints on attempts at orderly marketing. In the wet season the livestock cannot be moved across the Lorian Swamp, or at times, the Tana River. In the very dry season, there are not sufficient watering facilities along trekking routes to permit movement at that time. Another constraint is disease and quarantine problems which will not permit the out-movement of cattle for 3 to 6 months after they are purchased.

Private traders and butchers also purchase and move livestock out of the NEP, especially to Mombasa. They also purchase from Coast Province ranches. LMD and range management officers report that traders may move diseased cattle out along trekking routes, and the contamination in some cases is so bad that LMD cannot use these routes. We were unable to check the validity of such claims, but assume that they are true.

In 1977 and 1978, when cattle were in short supply the LMD and KMC were not able to purchase enough to meet the demands for stocking ranches or for slaughter by KMC. However, it is noted that the LMD not only purchased directly on their own, but assisted KMC and AFC in purchases in 1978 and 1979 to date. Here is a list of such purchases:

LMD purchases on their own

1976/77	22,846	(no. from NEP not readily available)
1977/78	1,234	(no. from NEP not readily available)
1979 to Aug. 31	24,303	(14,310 from NEP)

LMD assisted KMC

	head	
1978	7,992	none from NEP
1979 through March	7,241	none from NEP

LMD assisted AFC

1978	3,385	none from NEP
1979 through May	5,109	none from NEP

12. Percent sales in response to Price increases

In Feb. 1978 the LMD prices offered to producers were 1.75 to 2.00 Shs./Kg. live weight and they refused to sell in large numbers. After Feb. 1978, prices were raised to between 2.35 and 2.50 Shs./Kg. depending on distance from the KMC Athi River Plant, but producers would not sell to LMD as they were receiving higher prices from stock traders and private butchers. (See Annex 18, Item 70.)

In Jan. 1979 the LMD price of 2.80 Shs./Kg. was offered for all cattle in NEP and producers responded favorably. Producers wanted higher prices and it was later agreed that LMD was authorized to pay 3.50 Shs./Kg. The ranchers buying immatures agreed to pay a price of 3.40 Shs./Kg live weight, but AFC and LMD indicated that they could not pay more than 2.80 Shs. incurred the other cases of moving stock to ranches. The response of producers in March-August 1979 to the price offered was good and LMD purchased about 24,000 head by June 30 and an additional 1270 head were purchased at Kalalut in July-August. The LMD officer in Wajir indicated that they were to begin again on Sept. 2 in Mandera. LMD representatives estimate that in the South of the NEP (Garissa District) about 3,000 more head of cattle remain for sale (which could not be purchased earlier due to an outbreak of disease).

The LMD has improved marketing in the NEP. It is hoped that more auction sites and weighbridges will be initiated and that more holding grounds and watering points will be developed so cattle can be trekked out of the NEP in very dry periods.

We believe that producers will respond to higher prices and it is hoped that such will be used to facilitate the production and marketing. We believe that prices paid to pastoralists especially for immatures, are still too low and should be increased. The returns to ranchers are disproportionately high (compared to pastoralists selling immatures) in the production process.

RECOMMENDATION

- a) price controls on beef should be removed and LMD and KMC should be required to compete freely in buying with private traders and butchers.
- b) that AFC should not be authorized to purchase directly for ranches and that this be done either by LMD or private traders (who must meet certain conditions and abide by regulations to be issued by GOK).
- c) LMD should set separate prices for old cows, calves, heifers 1-3 years and steers 1-3.5 years.
- d) LMD and KMC should be given responsibility for crisis or distressed buying in the event of extreme droughts and that they be paid a GOK subsidy to the extent of any losses incurred. (An agreed crisis plan needs to be developed to avoid excessive drought losses.)
- e) exports of live animals, particularly sheep, goats and camels should be authorized whenever the KMC or private butchers cannot buy at prices attractive to producers.
- f) the entire cost of disease control should be borne by GOK.
- g) no water fees should be charged to pastoralists.
- h) dips or spraying programs should be established in several locations in each NEP grazing block.
- i) It is further recommended that LMD, AFC, KMC, traders, and local butchers (the latter two including those who purchase more than 10 animals per month) be required to report by month or by quarter, for each district or buying center, their purchases and average prices paid by classes as follows:

1. Cattle

- (a) old bulls and cows
- (b) calves less than one year old
- (c) heifers 1-4 years old

- (d) steers 1-3 years old
 - (e) steers over 3 years old
 - (f) others
2. Sheep and goats
- (a) matures
 - (b) others
3. Camels
- (a) matures
 - (b) others

It is recognized that this is not likely to be complete, but a beginning should be made on a better system of collecting the data needed. Copies would be sent to both the Provincial R.M.O.s and the MCA, which would summarize and issue quarterly and annual reports.

13. Problems of Range Management Officers in NEP

a. Lack of water is the greatest complaint made to us by Range Management Officers in the NEP, especially in the case of boreholes that have not been equipped or for which the engines, generators or pumps are broken down. They report these problems to the Ministry of Water Development in Wajir but they say that even after 1 or 2 years nothing is done to provide the equipment or repair that which is inoperative. Some of these situations have existed for 1.5 to 2.0 years or more and in some cases the engines, etc. needed are in the MOWD warehouse at Wajir.

b. In the dry season there has been a large influx of graziers and livestock into the blocks with water from those blocks which do not have water.

In many cases there simply is not enough water for all the livestock and the situation will become more serious as many of the large pans will be dry by September 30 before the October-December rains come.

Graziers from other blocks where water is not available come into their blocks and graze on areas set aside only for dry weather grazing by herds belonging to block members.

c. Lack of communications with graziers is a major constraint, especially as virtually none of the range officers can speak Somali and virtually none of the pastoralists can speak English but some can speak Swahili. Three range management officers or assistants have learned some Somali and one block manager (a Masai) indicated that he wanted to take a course in the Somali language. We will have more to say about this later.

The Ministry of Water Development, R.W.S., for the whole of the NEP is in Wajir. This is 200 miles or more from various points in the province over very bad roads, impossible to travel in the rainy season. Even in Wajir, many of the technicians are not competent to install or service engines, generators, and pumps. There are no MCWD offices or warehouses for spare parts in villages dispersed throughout the area. Boreholes which were drilled 2 years ago have not had pumps and engines installed. Less than 20% of the boreholes are operating, and water from them is crucial as a main source of water in the dry season.

d. Vehicles are not available (in late August, 1979) they had been taken by human census enumerators, some are broken down and the fuel allowance of 250 litres of petrol per month is not sufficient for them to travel as required throughout their range blocks.

e. There are no weighbridges in most blocks so graziers cannot weigh their livestock.

f. In certain blocks especially near wildlife reserves there are numerous complaints by graziers in respect to loss of livestock by predators. There is a fund from the Ministry of Tourism and Wildlife for the payment of compensation for such losses but the procedure is very cumbersome; no compensation is ever received. The following people must see the animal killed and thus certify for compensation to be paid:

- (i) Chief of the area
- (ii) Veterinary Officer (may live 75 miles away)
- (iii) Range Management Officer
- (iv) Game Warden
- (v) Graziers Representative

There is no telephone system by which these officers can be notified and long trips to inform them may be necessary. The animal killed may have been eaten long before this can be done, so there is no evidence of it.

g. In two or three blocks there is no housing for the block manager and his two assistants (but this is expected to be only temporary as the scheduled rate of building houses seems to be fairly good.)

h. Block managers try to collect water fees each year. However, this is virtually impossible when the boreholes are not working or the pans have dried-up.

i. In certain areas there is livestock theft, and in some areas north of Wajir there are security problems apparently related partly or wholly to theft and banditry not only of livestock but also of vehicles.

14. Alternatives for Income Generation in the NEP

a. Vegetable and fruit production

There are opportunities (which are already being planned or are underway) for the production of irrigated vegetables, melons and fruits along the Tana River. Maize, sorghum, rice and cotton probably can be produced successfully, but such crops may not be the most efficient users of the limited water supplies available. If there is proper fence protection against livestock and wildlife, it is feasible to produce small family or village plots of vegetables, etc. Small inexpensive windmills and hand pumps at Wajir demonstrate that this can be done on a limited scale.

b. Small scale industry

(i) Hides and skins - On the basis of 1977 information on hides and skins in the NEP plus those from Ethiopia and Somalia, there were 342,106 goat and sheep skins, 2967 cattle hides, and 735 camel hides available in the NEP. Such supplies are sufficient for a tanning, processing and manufacturing industry, especially for items made from sheep and goat skins.

Table 2. Hides and Skins Trade in the NEP and those from Ethiopia and Somalia. 1977 (source - Veterinary Service Division, annual report from the NEP)

<u>AREA</u>	<u>CATTLE HIDES</u>	<u>GOAT SKINS</u>	<u>SHEEP SKINS</u>	<u>CAMEL HIDES</u>
Garissa Dist.	787	29,568	39,329	-
Wajir Dist.	1,765	16,382	25,930	640
Mandera Dist.	415	72,176	72,673	145
Total NEP	2,967	118,126	137,932	785
From:				
Ethiopia	-	20,803	20,632	-
Somalia	-	16,049	16,683	-
Ground dried				
Ethiopia	-	188	-	-
Somalia	-	1,040	653	-
Subtotal from Ethiopia & Somalia	-	38,080	47,968	-
Grand Total	2,967	156,206	185,900	785

(2) Handcraft

There are already small handcrafts industries for the making of camel mats, rope, camel bells, and milk and water containers used by the pastoralists. These could be expanded not only for local use but items such as camel bells might be increased for sale to tourists in other parts of Kenya, such as Mombasa and Nairobi.

(3) Ghee and cheeses

The feasibility might be studied of making more ghee in the rainy seasons and storing it for use in the dry periods. Hard goats' milk cheeses are liked in certain areas of Africa, but we do not know whether or not such might be developed for consumption in Kenya.

C. Service and Trading Facilities

Everyone is familiar with the need for road improvements. Perhaps a study could be made of the possibility of a railroad from Mombasa to Wajir--which could be used for various purposes including marketing cattle.

There is (or soon will be) a need for more trading centers or stores as well as reasonably priced hotels or guests houses in villages along the main Garissa, Mado Gashi, Habaswein, Wajir and Mandera road. A bank and payroll center for GOK employees in Wajir would be useful. Likewise there is a need for garages and vehicle repair shops and perhaps services for water facilities.

The existing towns and villages seem to be badly in need of safe water supplies and sewage systems before certain other developments can take place. Perhaps the MCWD could start by posting one or two trained service and repairmen in places such as the district headquarters as well as Haberswain, Buna and El Wak for servicing nearby boreholes for both the villages and livestock water supplies.

D. Ranch Programs

The program covers three categories:

- Company ranches
- Commercial Ranches
- Group Ranches

1. Company Ranches

Company Ranches are privately owned and operated, mainly by shareholders. Land is leased for an annual fee. They vary in size but are mainly between 20,000 hectares (50,000 acres) and 80,000 hectares (200,000 acres). Some owners have had previous ranching experience and equity in ranch property. There is a Board of Directors and usually a hired manager for a three year renewable contract. Herders and other workers are hired. The original World Bank model ranch is:

28,900 hectares

3,200 breeding herd

663 purchases of immature steers

There are breeding herds and immatures are purchased from pastoralists. There are to be annual sales of 3.5 to 4.0 year old steers...

For company ranches, the land is trust "or crown" land, which is leased from the government by the operators. At first the leases were for 20 years but in August 1979 this was changed to 45 years. The operators of these lands are often becoming new ranchers without having had previous livestock production experience, and such ranches are expected to be handled primarily by paid managers.

2. Group Ranches

The group ranches are being established mainly in Masai areas of the Rift Valley, but also in certain other pastoral areas, except the northern rangelands. The plan is essentially the association of grouped families or a clan with a specified area of land for which members are given a title deed. The

group ranch land areas are pieces of land grouped together on the basis of part of those lands customarily used by the herds and flocks. Members are experienced pastoralists. The legal framework for group ranches provides that the herds and flocks are to be confined to the group ranch area assigned and each group member can be limited to specified livestock quotas. At least for the time being, each group member can be limited to specified livestock quotas.

These pastoralists normally own cattle, flocks of sheep and goats, and some donkeys. Cattle have been used mainly for the purpose of supplying the family with milk and blood for food. Also, cattle have traditionally been considered their wealth or savings and large herds are a measure of prestige. The objectives include "settling" pastoralists on specified areas of land and improving water supplies, dipping facilities and production methods and increasing the rate of offtake of cattle. More school and health clinics are being built by funds raised by group members.

3. Cattle as Feeders -

The major reliance on purchased immatures as envisaged in the project plan is by the Coast Province company-type ranches, but there is also some reliance on them by commercial ranches (little by group-type ranches).

Although AFC now plan and in the past have put purchased immatures on a few group ranches, this does not seem to have been an integral part of the original plan for this type of ranch.

The assumptions regarding the profitability of rancher purchases of immatures for grass fattening are based on:

- a. Obtaining immature animals that have reasonably completely developed frames which are not finished (not ready for slaughter) because the forage on northern rangelands is not adequate to accomplish this.
- b. The assumption that the ranchers will be able to obtain a ready supply to meet their demands.
- c. The assumption that the animals purchased will have sufficient ranch water and quality forage to gain rapidly to finished slaughter condition.

d. That there will be an attractive price spread or margin between the buying and selling price, and

e. That the net gain and price margin will be sufficient to more than cover the input costs (such as water, dips, land lease, herd employees), plus the animals lost from diseases and to predators.

Past analyses seem to indicate that ranching based on purchasing immatures is profitable. Some of these for Kenya seem to be based on better than average ecosystems, rainfall, and forage conditions than are true for the areas we are considering. (See Annex 18, Item 43)

Input - output costs and returns relationships have changed rapidly in the past decade -- in fact in the past 2 years. The largest relative changes since 1970 are rapidly rising input costs for developing water supplies and other capital improvements, leasing costs, local rates, interest rates, (6.5 or 7.0 percent rising to 10 percent), hired labor, dip fluid, vehicles, tractors, etc. In much of the same period, meat prices were controlled and finished cattle prices increased much less than input costs. When immature cattle are purchased on loan funds, one has to repay the loan plus interest at 10 percent.

In addition to all of these factors, drought conditions were so bad in the 1974-76 period that their forage and water supplies were not adequate to justify purchases of immatures in much of the period.

With large loans and high interest costs and very little to sell in the 1975-77 period, most Kenyan ranchers got in to an increasingly difficult financial position with large accumulated arrears in interest charges.

Profitability in ranching depends on relatively large land areas, relatively large cattle numbers, high capital and development costs, and a low percentage return on investment (on the average probably less than 6 to 7 percent). This means that either fairly modest increases in input costs or even a modest decline in sale prices will turn a profitable operation into a losing one.

With a continuation of price control on meat, high interest rate, and the frequent periodic severe drought, it is very risky to rely mainly on the purchase of immatures. Even if

the immatures are available, with present input cost-output prices relationships it is doubtful that ranchers depending mainly on purchasing immatures (on the basis of loans) will find it very profitable over the long term -- including periods of severe drought.

It seems clear that it is less risky for most ranchers to rely primarily on producing most of their own steers and purchase only a proportion of immatures when they are available and the ranch supplies of forage and water are adequate.

If meat prices are decontrolled, the prices of beef, fat cattle and immatures will all rise and seek their own levels. Even then, under Kenyan conditions it probably would be too risky (because of frequent droughts) for ranchers to rely more than 15 to 25 percent on purchased immatures.

4. Length of leases and loans and interest rates

a. Leases

The length of leases has been 20 years, but this is too short to justify the operator making major capital investments. In August 1979 the GOK began revising the length of leases to 45 years.

b. Loan

The length of capital development loans has been 10 years, but this is far too short.

RECOMMENDATION: The length of capital development loans should be increased to 30 or 40 years.

Cattle purchase loans have mostly been for 1.5 to 2 years, which may be too short under certain conditions (such as drought), but AFC seems to have recognized and taken into account such problems.

c. Interest Rates

The interest rates were originally 7.5 percent, but later were raised to 10 percent. IERD would like AFC to raise rates to 12 percent. In order to avoid distortion in investment the interest rates on livestock loans should be competitive with rates on loans for use on other enterprises. However, with the present cost-price squeeze on livestock (mainly cattle) producers, the 10 percent interest charges are a heavy burden to ranchers.

5. Quarantine Holding Grounds

These are dictated by the veterinary service in order to prevent or minimize the spread of disease. In recent years, an increased number have been provided. More are needed, especially as there is an increasing movement of cattle from northern rangelands to ranches, and from rangelands as well as ranches to slaughter. Areas such as Mombasa, Athi River, and Nairobi, need more quarantine grounds and GOK policy might be strengthened to assure that all buyers use them to prevent the spread of disease. In the very long term, the spread of disease by trekking may be reduced as more are transported by trucks and train.

In the NEP the buyers have been charged 8.5 shillings per month per animal in quarantine, and this period may last from 2 to 6 months or more.

RECOMMENDATION: As this quarantine requirement is primarily for the purpose of minimizing the spread of disease to livestock in other areas, it is recommended that this be treated as an overall national livestock development cost with the charge absorbed by the GOK.

6. Concept of the Private Company Ranches

Public lands are normally leased for 20 (and now 45) years and annual lease charges, as well as local council rates (taxes), are paid by the company.

The owners are share holders who usually hire a manager, herders, and other employees. They may receive development loans, but are supposed to supply 20 percent of the total as equity capital -- but in some cases the percentage supplied is less.

Why does GOK grant such lease rights to absentee owners? In some cases one or two of the owners may reside on the ranch while others are absentee owners -- actually shareholders. The GOK, as is the case in other private enterprise countries, wants the livestock produced, and this is a desirable way of creating the profit incentive for providing capital and good management.

It is desirable that a larger amount of capital be used on these ranches and that a much higher percentage of capital needs to be supplied by shareholders equity.

RECOMMENDATION: The private company status of company ranches could be changed to public in an effort to obtain more private capital, and managers, foreman, and other employees should be encouraged to purchase shares. This might increase the incentives to improve work and management.

7. Livestock Health

Animal health is of primary importance to successful livestock production wherever it may be, and Kenya is fortunate to have excellent veterinary services whose major value to the stockman or herder is the prevention of disease. The treatment of sick animals is not to be overlooked or thought of as unimportant, but an ounce of prevention, we are told, is worth a pound of cure.

Measures that can be taken to prevent the spread of disease include not only inoculation and vaccination to immunize against specific diseases, but also the control of vectors such as ticks and flies by dipping or spraying of the farmer's livestock.

Many ranchers and pastoralists have built dips or spray races and those who have not, in most cases, have articulated a need for such facilities.

E. Further Observations on the Group Ranches of the Rift Valley Province.

The GOK program outlined for establishing and developing group ranches covers much more than a program to increase the productivity of livestock.

Changes envisioned in this program, as planned, would require changes in the next five to ten years which are greater than changes made by pastoralists in the past 200 or more years. It will require reductions in cattle numbers, the sale or slaughter of more cattle (especially male calves or steers), changes in pastoralists' diets, and a reduction in the number of pastoralists and family members who live primarily on the products of their herds and flocks.

We believe that there is a difference in approach between the MOA officials (ranch planners, range management officers, and AFC) on the one hand, and the pastoralists on the other. The GOK representatives seem to view the group ranch program primarily as a way to increase production of cattle and the annual offtake for slaughter to provide beef mainly to urban populations. The Masai pastoralists seem to view the program primarily as a means of increasing the sizes of their herds and flocks and giving better assurances of a larger and more steady supply of milk and blood to feed their families.

Data were shown to the evaluation team in respect to 162 proposed or actually operating group ranches. An examination of these data indicate that: (a) most of the ranches would be badly overstocked, and (b) that for most of the ranches the number of hectares per family are not sufficient to support those pastoralist families. Research has shown that about eight cows are required to provide milk and blood as food for each member of a pastoralist family in the Rift Valley. (See Annex 13, Item 43).

This means that with customary diets a total herd of 200 to 260 cattle would be needed for a family of ten, and 110 to 150 head for a family of 6. This is based on an annual loss of about 5% of the herd -- about the optimum under present conditions. If annual losses were 10 to 20% or more, then the breeding herd would need to be even larger. Either way, large reductions in cow numbers to fit group ranch plans would require significant changes in diets.

There is considerable evidence to indicate that there are serious problems in respect to establishing group ranches as

planned which would need to be solved in a very short time period. In some cases the acreage per family is too small. There are some group ranches proposed with less than an average of one hectare per family and there are quite a few with less than five hectares per family.

In Narok District, there are 14 proposed ranches with less than six hectares per family (including five with 3 or less hectares or less per family). In Embu there are eight ranches proposed with an average of only 17.3 hectares per family, and five of the eight proposed ranches have less than ten hectares per family. Of the total of 162 ranches, there are a large number with less than 20 to 30 hectares per family. Many of these acreages simply are too small to support even one person. In numerous cases, the only conclusion is that many of the family members would have to work elsewhere, and in even more cases the pastoralist families would have to drastically change their traditional diets, and produce or buy cereals and vegetables. Such changes, if achieved, take a long time.

RECOMMENDATIONS

1. Proceed as rapidly as is feasible in the water development and construction of more dips, but delay any actions to invoke livestock quotas on members or attempt to assure that members' herds and flocks are actually confined to the area assigned to that group ranch.
2. The GOK should increase efforts in disease prevention and control and absorb the total cost of constructing dips and the cost of all veterinary services.
3. The GOK should absorb most of the cost of water development, at least near game preserves.
4. Mount a comprehensive campaign in the Masai language to try to convince pastoralists to sell more animals, especially non-productive male cattle and sheep and goats. Such an effort would require the organization of special marketing arrangements, price increases, and a very conservative policy on further loans.

Table 3. Analysis of Group Ranches in Narok District of the Rift Valley Province^{1/}

Name	No of Mem- bers	Human Pop- ulation	Total Size Hec- tares	Ha Per Mem- ber	Ha Per- son	Total No. Cattle	Total Sheep and Goats	Total SU	SU Per Mem- ber	SU Per- son	Ha Per Stock Unit	
1 Olkeri	18	99	998	55.4	10.1	662	656	477	26.5	5.5	2.09	
2 Jjmarshariani	98	504	4,992	50.9	9.9	1,342	1,166	944	9.6	1.9	5.29	
3. Mori Jo	18	71	1,574	87.4	22.3	509	358	340	18.9	4.8	4.63	
4 Olalmutia	18	110	3,726	206.9	33.9	Steers 883 ^{2/}	893	est. 660 ^{2/}	36.7	6.0	5.65	
5 Nkalramram	88	289	4,375	49.7	15.1	899	943	637	7.2	2.2	6.87	
6 Olomsimis	81	1,221	9,640	53.3	7.9	7,350	1,598	4,446	24.6	3.6	2.17	
7 Kelylan	43	223 ^{3/}	891	20.7	3.9	300	NA	NA	NA	NA	NA	
8 Total excluding Kelylan	464	2,314	25,306	54.5	10.5	12,528	6,507	8,164	17.6	3.53	3.10	
9 Average above Divided by 6	74 ^{4/}	389 ^{4/}	4,213 ^{4/}	54.5	10.5	2,088 ^{4/}	1,084 ^{4/}	1,361 ^{4/}	17.6	3.53	3.10	
Castmaudiy Suswa Kitet ^{5/}	488	3,797	39,790	85.5	10.5	27,511	61,114	25,992 ^{6/}	57.9	3.80	1.53	
Suswa Kitet ^{6/}	376	2,885	39,790	105.8	13.8	16,114	35,996	15,680 ^{4/}	41.7	5.44	2.54	
						Donkeys						
						589						

- 1/ Based on AFC information supplied to the USAID evaluation team August 21-23, 1979.
- 2/ Includes 105 purchased steers.
- 3/ Estimated by using 5.2 persons for each household.
- 4/ Calculated by dividing the totals in line 3 above by (excluding figures for Kieyian).
- 5/ Supplied by Mr. WM Gikiria of AFC Narok Branch. All information shown was compiled over 100 group members group ranch area.
- 6/ Mr. JC Chelogoi, ARO East Mau supplied new information estimated the carrying capacity as 9,053 stock units less than the stock units owned by group members.

III. THE EFFECTIVENESS AND APPROPRIATENESS OF AID INPUTS

This chapter attempts to analyse the effectiveness and appropriateness of AID inputs in this project. In cases where a full analysis and recommendations are made in other sections of this report, the material will not be repeated here, but there will be a reference to the appropriate section.

A. U.S. Technical Personnel

Personnel management has been less than ideal in this project. The attempt to supply a variety of technicians who are not regular staff of AID, and are also not coordinated in any way by a single contractor or manager within the AID Mission, has resulted in the types of problems listed below.

1. PASA personnel

In studying the End-of-Tour Reports of PASA personnel assigned to the project there seems to have been valid cause for some of the frustration, disappointment and unhappiness about the working conditions, job expectations, personal relationships, and chain of command of several of them.

A letter in the files of one of the AID project managers refers to AID handbook 12 paragraph 1, C.1. as stating that "PASA personnel are to be treated as direct hire when overseas." After these professional engineers, range/ranch planners, and hydrogeologists had been in Kenya for a while, they tended to comment negatively about being assigned to the Ministries of Agriculture and Water Development. They complain that they are treated like CPEX employees of the Government of Kenya and not as "advisors" as they seem to have been led to believe before leaving the United States. See Annexes 12, 14, 16, 17, and Annex 18, Item 26.

In one of the first meetings the evaluation team had with one section chief in the Ministry of Water Development he complained about PASA personnel having direct contact with AID/Kenya. He wanted all communication and contacts with AID to be transmitted through Ministry channels. It seems that there are no memoranda of agreement between such individuals and their relevant units within the GOK.

RECOMMENDATION

Any AID-supported personnel serving as part of GOK Ministries in this project should have clear specific memoranda of agreement provided jointly by AID and the particular Ministry specifying duties and responsibilities, as well as lines of authority, responsibility, and accountability.

According to job descriptions and assignments, it is clearly stated that AID/Kenya will provide vehicles to PASA technicians when needed in order to perform their duties as directed while stationed at their duty posts. However, this has not been the case, and is a source of frustration and low morale. The newly acquired Land Rover vehicles, ostensibly purchased for the U.S. Technicians' use appear to have been commandeered by senior officers in the Ministry, leaving the technicians without adequate transportation. (see Annexes 13, and 17)

2. OPEX personnel

The experience of the several OPEX personnel interviewed, or whose End-of-Tour Reports were studied, seem to have been somewhat similar to those of PASA personnel, in that there were two resignations before the end of tour. One of these men left no record of his dissatisfaction or reason for leaving that the evaluation team could find. The other, however, responded to a letter from the Near East Foundation project coordinator asking for his reasons for leaving Wajir. The response is attached as Annex 6.

3. Counterparts

In the PIC/Ts it states that the GCE will provide a counterpart for each technician. In the End-of Tour Reports, the PASA technicians point out that it was rare to have ever had a counterpart assigned. (See Annex 13, page 2; Annex 17)

B. Training of Kenyan Counterparts

In the Project Design Summary, and the Logical Framework, the magnitude of outputs assume that by 1982 Kenyans will have replaced AID provided technicians. Thirty-four Kenyans will have completed U.S. formal training; twelve will have completed U.S. non-formal training, and thirty-eight completed local training to provide a qualified staff for the Range and Ranch Planning and Implementation Division of the Ministry of Agriculture.

The training component of this project has continued to train Kenyan personnel in the areas of range management and agricultural economics, but there is some problem in regard to the training of personnel from the Ministry of Water Development. Although several candidates have been nominated and accepted for training in the United States, these same persons subsequently withdrew their applications. According to information provided to the evaluation team, no further nominations have been made by MCWD to date.

Therefore, the conclusion is drawn that U.S. trained Kenyans will not replace all AID-provided technicians by 1982.

However, of the many aspects of the NRRD Project, that part involving participant training stands out as being highly useful and productive. The evaluation team believes that participant training should be continued, especially with the Ministry of Agriculture, and it is hoped that the Ministry of Water Development will see fit to make appropriate nominations.

Below is a list of the numbers of participants in Agriculture and related fields who have returned to Kenya in recent years.

1959 - 4	1968 - 33
1960 - 5	1969 - 24
1961 - 10	1970 - 18
1962 - 13	1971 - 16
1963 - 54	1972 - 1
1964 - 67	1973 - 7
1965 - 66	1974 - 7
1966 - 78	1975 - 15
1967 - 39	1976 - 26
<hr/>	
1977 - 10	
Total: 493	

As of June 30, 1977, 50.99% of funds budgeted to participant training had been allocated. For a full list of AID participants on this project, see Annex 5.

In addition to the academic training supported by AID, there seems to be a need for more practical training of persons who are not likely to have any formal certificates. Such persons, from the pastoralist groups whenever possible, might well be trained for various tasks relating to water point maintenance and operation, spraying and dipping cattle, cattle weighbridge operation, and things of that sort.

RECOMMENDATION

That applied practical technical training be provided in various fields for pastoralists.

Further, since most professionally trained agriculturalists in Kenya do not speak either of the major languages of the pastoralists, the evaluation team urges that two things be done.

RECOMMENDATION

Provide language training to professional agriculturalists in the language of the pastoralists.

RECOMMENDATION

AID should fix a quota and insist on a minimum proportion of participant fellowships, particularly in range management, being assigned to personnel who speak at least one common pastoralist language.

C. Equipment and Commodities

Since there is a full discussion of equipment and commodities in Chapter II, B, 7, it will not be repeated here. Recommendations from that section are repeated below. However, the major problem is based in project design. Since the pastoralists have normal ways of supplying their water, such as dug wells in the North Eastern Province, and rivers and other arrangements in other places, slight, gradual modifications of those would have been much more feasible than the attempt to bring heavy, complex, high-energy, and we believe, inappropriate technology. Wind mills, various types of hand pumps, and locally made water troughs would have been more appropriate, and thus more feasible.

RECOMMENDATION

The IH Scouts which were provided under the AID Loan were a poor choice. The Kenyan Government should not be held accountable for repayment because of the poor judgement of the procuring officer.

RECOMMENDATION

A streamlined system for supply management should be established for this project, or it should be limited to equipment which can be fabricated in Kenya.

D. Administration and Project Management

Sending two men to the moon required a back-up group of thousands of others on earth. For every pilot in an airline, there are hundreds of others maintaining and servicing the operation. For a major Range and Ranch Development Project, dispersed in the far corners of Kenya, the AID Mission back-stopping seems to be exceptionally inadequate.

At the time of the evaluation, the Mission did not have one vehicle capable of travel to the North Eastern Province. Top Mission personnel had not been to some of the areas where the project is being carried out. One dedicated, sensitive, experienced, and knowledgeable project manager was trying to cope with a multitude of administrative, procedural, financial, logistic, mechanical, and personnel problems that would not permit opportunity for his technical experience to be utilized.

The project is operating without any "field team leader" or "coordinator". AID-supported American personnel seemed to be floundering in several different GOK ministries, with no clear understanding of duties and responsibilities, much less lines of authority and responsibility. GOK officers seemed to have different expectations than those of OPEX or PASA staff, and morale seemed unusually low.

The inadequacy of supply management has been demonstrated above. The time lag between first reports of errors in planning, procurement, or personnel matters, and some kind of corrective administrative action by AID/Kenya has been excessive. In many instances, no action has yet been taken. (see Annex B, Item 69).

For example, there were certain "conditions precedent" in the Capital Assistance Paper (see Annex B, Item 56). Among them were the following:

"a. Evidence of satisfactory arrangements for equipment servicing and purchase of spare parts, including establishment of a separate logistic and accounting section for North East Province Water Development.

"b. Evidence that an equipment maintenance program will be undertaken, including guidelines for maintenance of equipment.

"c. An equipment utilization schedule, including a firm plan for year one and a projected plan for succeeding project years."

The Loan Agreement, Dated September 11, 1974, included, on page 9, the following "conditions precedent" to additional disbursement:

"a. Evidence of satisfactory arrangements for equipment servicing and purchasing of spare parts, including establishment of a separate logistic and accounting section for North Eastern Province range water development within the Ministry of Agriculture's Water Department;

"b. Evidence that an equipment maintenance program will be undertaken, including guidelines for maintenance of equipment;

"c. An equipment utilization schedule, including a firm plan for the first year of Project implementation and a projected plan for succeeding project years."

Implementation Letter No. 3 of May 7, 1975 says that the Ministry of Water Development has sent AID a "letter of March 5, 1975, submitted in satisfaction of Conditions Precedent in Section 4.03, of subject Loan Agreement...", which is the section quoted above. That letter is signed by Edward B. Hogan, Director.

All observations made by the evaluation team indicate that these Conditions Precedent are not presently being met, and no evidence has been found that they were ever met.

However, a basic provision in project design was that these particular conditions would be met. A change in this requirement materially changed the feasibility of several other aspects of the project.

RECOMMENDATION

A project of this magnitude needs a larger and more adequately supported back-up staff within the AID Mission.

AID/Kenya has many other projects in its Agriculture Division, and additional project in other areas. The NRRD Project may be of low priority among other projects. However, if it is not appropriate to have a larger and more adequate backstopping staff within the Mission, then the alternative of contracting with some outside unit which would take responsibility might be considered.

RECOMMENDATION

If no coordinating unit which can be accountable for performance is feasible, then it is probably in the interest of both governments involved to bring the project to an early conclusion.

Relationships between the Government of Kenya and AID also seem to be irregular. Interaction between the Project Manager and his counterparts in various GOK branches and Sections is apparently discounted at higher levels. Thus communication among the different levels within the Mission is less than ideal. This sort of phenomenon comes to the surface when the project manager tries to insist on GOK compliance with provisions of intergovernmental agreements.

Several cases relating to motor vehicles purchased under the project illustrate.

AID-supported personnel complain of a complete lack of discipline among host country personnel assigned to them when they are serving in administrative posts within GOK units.

RECOMMENDATION

There should be a memorandum of agreement between the AID Mission and the particular unit of GOK in which the individual is assigned for all AID-supported staff.

Similarly, there seems to be no memorandum of agreement between the Ministry of Water Development and the Ministry of Agriculture. Problems of communication breakdown between the relevant units of these two Ministries often leave AID technicians stranded and ineffective.

The human and cultural constraints associated with an operation of this sort make achievement difficult. AID has not been able to recruit appropriately experienced technical personnel, who have not only specialized competence, but successful prior experience in situations like those at Wajir or Narok.

Kenyans have complained that these people are not in the country long enough to learn local patterns of behavior. By the time they become functional, their tours of duty are over. Part of this may be associated with the attempt to staff with personnel "borrowed" from other organizations, or personnel delivered by a recruiting contractor with whom such individuals have no longterm relationship.

RECOMMENDATION

If the Agency cannot staff this operation with its own permanent professional personnel, it might be better to contract with an organization which could combine personnel selection and recruitment from the USA with management and administration in the field.

The present fractionated experience with technical personnel, discussed above in section A, has its roots in weak project administration and management.

And to further complicate the situation, the multiplicity, of donors involved in the NRPD militates against simple partnership-type relations between AID and GOK. The involvement of international assistance groups from Canada, Sweden, the United Kingdom, the World Bank, and the International Livestock Center for Africa, suggests the following:

RECOMMENDATION

Some mechanism for improved coordination and communication among all "donors" should be established.

Even a weekly luncheon meeting of project managers, along with GOK counterparts, should help.

Finally, the significant activity in this type of project happens in the field, not in Nairobi. It is unlikely that it can be successfully managed without much more frequent two-way communication between field and central units. It calls for the AID Mission personnel constantly travelling among field locations.

RECOMMENDATION

If the Mission cannot provide the logistic support for frequent field travel, and sufficient numbers of personnel that both field and Nairobi responsibilities can be covered, then this might not be the appropriate type of project for this AID Mission.

E. The AID Livestock Loans

The evaluation team is concerned regarding whether or not AID should be providing funds for cattle purchase loans.

There are a number of problems in attempting to evaluate the effectiveness of such loans, especially as follows:

- (a) there is little if any AID guidance or participation in respect to the actual use of these cattle purchase loan funds,
- (b) the funds to date have been used only to purchase cattle (no sheep, goats, or others).
- (c) the GOK has continued to control most beef prices, which has not permitted cattle prices to rise to their equilibrium levels, thus discouraging cattle production more than cattle purchase loans are likely to encourage production.

(d) ranchers are having great difficulty repaying both cattle purchase loans and capital development loans. This is due to many factors, including poor management, very high capital development costs, high production input costs which have been more than cattle prices, (partly because of the controlled beef prices), and the severe drought of 1974-1976. Further, in some cases the ranches may not be viable as planned.

1. Relationship of AFC to Ranch Development

The funds from IBRD and GOK for capital development are handled by the Agricultural Finance Corporation. The AID, IBRD, and GOK funds for cattle purchase loans are handled by AFC. They were intended primarily to serve as a banking and credit organization. In actual practice they seem to have a much larger role in determining:

- (a) individual ranch investment,
- (b) the manager of some ranches,
- (c) deciding how many cattle to purchase for a ranch and when to purchase them,
- (d) and in some cases, when to sell their cattle (at least in one case attempting to influence the manager to sell before the cattle were ready).

AFC has a difficult job, and in some cases, reportedly, are pressed to make more loans (although this has been denied by donors). In some cases we believe that ranches have been encouraged to over-invest and over-borrow with the resulting heavy burden of high interest charges. AFC seem not to have encouraged ranchers to buy sheep and goats, despite the expressed wishes of ranchers to do so, and the excellent prospects for attractive returns on shoats, especially in the Coast Province.

2. Relationship of IBRD and AID to AFC

IBRD appears to exert considerable influence and guidance in respect to use of the funds and they seem to have more frequent reviews of the situation, progress or lack of it, and effects of the funds used.

Perhaps AID should make a complete semi-annual review of the situation on all ranches which have purchased livestock by use of AFC livestock loans and make appropriate comments and recommendations on the program.

3. AFC Influence on the Ranches

While we do not underestimate the difficulty of AFC in trying to collect loan repayments plus interest, and we are aware of banking policies in the case of defaults on loans, we have reservations on the propriety of AFC actually intervening in the appointment of ranch managers and deciding directly how the ranch should be operated, even in a period of financial crisis.

We have the same sort of reservation about the appropriateness of the MOA appointing range management officers (who are GOK employees) as ranch managers.

Are these not conflict of interest situations?

4. The Effect of Livestock Purchase Loans on Ranching

In the case of all ranches visited, the data available are not adequate to make an appraisal of the effect of livestock purchase loans on ranching progress. Clearly, the ranches are mostly not in a good financial situation. However, it is difficult in the absence of detailed cost and returns figures, and in the absence of fairly good ranch management, to make much of an evaluation of the effects of these loans on profits or losses. The loans undoubtedly increased the ranch production of beef, but with recent and current cattle prices, we do not know whether they have contributed to increases or decreases in net monetary returns to the ranch owners.

5. AID Funds for Training versus Cattle Purchase Loans

The evaluation team considers that to date the AID funds spent on training may have been of relatively greater long-term value than AID funds for livestock loans.

(a) There is a need for training ranch management officers and assistant ranch management officers to speak the languages of pastoralists.

(b) There is a need for training for pastoralists, who speak only local languages, in English, Swahili, and range management, so they can communicate better with other Kenyans and assume greater responsibilities for livestock programs in their own areas.

(c) There is a need to train ranch managers in practical management, including an apprenticeship period as livestock foremen or chief herders before they become ranch managers.

(d) Marketing improvement and a livestock market news service are badly needed, and some training in this area would be helpful.

(e) It is obvious that far more vocational training in skills such as motor mechanics, heavy equipment, water pumping equipment, dam and reservoir operation and maintenance is needed.

RECOMMENDATION

We believe that many types of practical skill training should have higher priority than loans for livestock purchases or the training of present RMO's for advanced degrees. It is recommended that AID phase out livestock loans and increase training.

IV. LIVESTOCK MARKETING

A. Marketing Systems

Although the LMD has done a great deal to organize auction or buying markets, holding grounds, trekking and road transportation of animals purchased, much more remains to be done. The use of U.K. loan contributions for trucks (lorries) and weighbridges has been very helpful. The maintenance system and use of trained mechanics to keep vehicles operating is worthy of study. Some way should be found to greatly increase marketing facilities and we believe that to the maximum extent this should be done through encouraging private trade and participation and ownership of facilities by the livestock producers themselves.

1. The Kenya Meat Commission

The KMC is a quasi-government organization essentially subject to important conditions and perhaps constraints. The KMC system of buying was and still is whenever it can obtain animals and is based on the producer, trader, or transporter delivering the animal to KMC facilities. The animals are then slaughtered, and the carcasses graded. The producer or trader would then be paid on the basis of the price scale set by carcass grade.

Many producers are far from KMC facilities and they want to be paid at the time the animals are purchased rather than at some later date after the animals have been slaughtered and the carcasses graded. One could consider that the KMC system is really out of date and was never well designed for producers living far away such as those in the Northern rangelands or in certain areas of the Rift Valley.

2. Private butchers

In recent years the KMC has lost business to newly established private butchers which send their representative buyers to the producer areas or use traders who go into the producer areas where they buy the animals, pay for them at the time of purchase, then trek or transport them to slaughtering facilities.

It is said by some people, including Ministry of Agriculture officials, that the private butchers pay more than KMC, LMD, or AFC. These same butchers tend to charge higher prices for the better quality grades of cuts than those authorized by the GOK.

3. LMD and AFC

The LMD system may now be the second largest cattle marketing system in Kenya, after private traders. It is difficult to determine the GOK defined framework of reference, exact role or limitations on LMD. This needs to be done and at the same time adapt policies to encourage private traders and livestock producers to own and operate marketing facilities.

The AFC is controlling a significant proportion of the buying of immature feeder cattle for ranches on which it has made loans. Is this desirable and is it in accordance with overall assumptions or plan of the NRED Program?

There is a need for clarifying the roles of both LMD and AFC, if there is any, in respect to determining the stocking or buying of immature animals or breeding stock for specific ranches on which the AFC has made loans. The same would apply to the assignment of ranch managers to these ranches.

The marketing facilities and systems are inadequate, producers, with no real producer marketing associations, have little say in respect to improving marketing, making or influence in achieving needed price changes, as well as the location of buying centers and the scheduling or publicity regarding auctions. Relatively more marketing improvements seem to have been made in the NEP, but this may be due to the fact that just a few years ago there were such limited marketing facilities there. However, many more marketing facilities and improvements are needed in the NEP as well as in other Northern rangelands such as the Rift Valley and the Coast Province.

RECOMMENDATIONS

It is recommended that:

- (a) Price controls on beef be removed and that LMD and KMC be forced to compete freely in buying with private traders and butchers.
- (b) That AFC not be authorized to purchase directly for ranches and that this be done either by LMD or private traders (who must meet certain conditions and abide by regulations to be issued by GOK).
- (c) Separate prices be set by grade for old cows, calves, heifers 1-3 years and immature steers 1-3.0 years and mature fattened steers or heifers.

(d) That LMD and KMC be given responsibility for crisis or distressed buying in the event of extreme droughts, that an advance plan be developed and that they be paid a GOX subsidy to the extent of any losses incurred in such operations.

(e) That exports of live animals, particularly sheep, goats and camels be authorized whenever the LMD, KMC, private butchers or traders cannot buy the supplies available at prices attractive to producers.

(f) That a comprehensive plan for all livestock areas of the country be made for holding ground locations which can be used by LMD, KMC, private butchers and traders on the basis of required compliance with all disease and health regulations.

(g) More auction sites be established for all livestock areas with weighbridges as required.

(h) Organize a National Livestock Producers Marketing Association with provincial and district branches (also block groups in MDP) which would participate in all major discussions and the decision-making on livestock marketing and pricing policies and programs (as well as on certain other aspects).

(i) Organize a livestock market information service which would collect and distribute information by radio, newspapers, etc. in respect to the volume and classes of sales and prices offered or paid. All auction rates would be announced.

(j) Require buyers of over 10 animals per month or 100 per year to file reports on the numbers of animals by type and class purchased and average prices paid for such classes.

It is recommended that LMD, AFC, KMC, traders and all butchers (the latter two traders and butchers would include only those who purchase more than 10 animals in any month or 100 in a year) be required to report (on a special form) by month or by quarter and in all cases by year, for each district or buying center, covering their purchases and average prices paid by classes as follows:

1. Cattle

(a) old bulls and cows

(b) Calves less than one year old

(c) Heifers 1-4 years old

(d) Steers 1-3 years old

(e) Steers over 3 years old

(f) Others

2. Sheep and goats

(a) Matures

(b) Others

3. Camels

(a) Matures

(b) Others

It is recognized that this is not likely to be complete, but a beginning should be made on a better system of collecting the data needed. Copies would be sent to both the Provincial RMOs and the MOA, which would summarize and issue quarterly and annual reports.

4. Incentives to Producers to Increase Production.

Our main conclusion is that the present Kenyan livestock program and beef prices are designed and implemented in order to provide supplies of low priced beef to urban areas. The present policies and programs would not be expected to result in a significant increase in production.

RECOMMENDATION

What is needed if production is to significantly increase is:

- (a) give greater price and income incentives to producers.
- (b) transfer steers from range to ranches at earlier age.
- (c) although marketing has been improved, greater improvements are needed and livestock producer marketing associations should have a greater say in policies and programs.
- (d) equal (if not greater) emphasis should be put on the production and marketing of sheep and goats--particularly the marketing of animals at younger ages. If supplies of lamb and kids are available regularly at competitive prices consumption of sheep and goat meat relative to beef would be expected to increase.
- (e) because of the effects of wildlife in spreading disease and the overall stated objectives of national policy to increase livestock production, it would seem appropriate for the GOK rather than the livestock producer to bear a larger proportion of the livestock disease and pest control programs.

5. Increasing the offtake by moving younger animals from range to ranches.

There has been much discussion of the low annual offtake and wishes to increase the offtake, but there have been few attempts at practical measures to accomplish improvements.

We have seen figures of the dry season losses in weight of animals the 2 to 3 year old period or even the 3 to 4 year old period. A partial solution could be to supplement feeding of protein, such as cotton seed in the dry season, but more can be done. Where adequate forage is available there seems to be an obvious solution of moving younger steers from the rangelands to ranches.

Table 4 LMD proposals for relocating UK loan funds beginning about 1978 to Southern areas of Kenya.

Area	Annual No. of cattle to be moved	Round trip distances miles	Additional transport. units required
Kajiado to Nairobi	41,000	150	1
Narok to Nairobi	20,000	200	6
Others Southern Areas ¹	15,000	140	2
Total	76,000	-	9

Reallocation of 10 weighbridges to the Southern areas was also proposed.

¹From Baringo and Kibwezi to Nairobi for slaughter and from Laikipia to railhead.

Table 3 is included to give some idea of the increased marketing facilities needed in Southern areas of Kenya.

B. The Drought in Relation to Livestock Marketing

After one or two severe drought years, there follows a period of two to four years when no immatures are for sale by pastoralists. They are trying to rebuild their herd numbers. After the 1974/76 severe drought in the Northern range areas there were virtually no immatures for sale through 1977 and few were available in most of 1978. There was some increase in 1978 but it was not until 1979 that pastoralists from the North began to sell fairly large numbers.

Pastoralists herds seem to have been rebuilt at fairly high levels. But if there were to be another severe drought in the 1980-84 period, there could be another 3 to 5 years when ranchers could either not accommodate the purchased immatures from range areas, or pastoralists in the dry range areas would not be willing to sell.

This means that if there were a severe drought on the average of about once in 5 or 6 years, when either the rancher does not have enough forage to accommodate the purchase of immatures or

when pastoralists are rebuilding their herds and thus are not willing to sell their immatures, then a rancher cannot rely primarily on purchasing a high proportion of the immatures more than 50% of the time.

In order for the rancher to minimize his risks in regard to supplies of cattle for fattening and shorten the drought and post drought period when the rancher would otherwise have few fattened animals for sale, the rancher will have to rely mainly on producing a high proportion of immatures from his own breeding stock.

1. Sample NEP Rainfall Data and the Drought Risk Factor

The three tables listed below are for only short time periods, but the results shown are useful in demonstrating the problems associated with low and erratic rainfall in Northern rangeland areas such as the NEP. Tables 5, 6, and 7 show the great extremes in annual rainfall over a period of years, the high percentage of years when rainfall is less than 6 inches (also less than 3 inches), the high percentages of annual rainfall that occurs in the periods March-May and October-December, and the extremely low percentage (normally less than 10%) which occurs in the 4 months June 1-September 30. Perhaps the most important observation of these data is that, on the average, one out of every five or six years annual rainfall is less than six inches and about one year in thirty rainfall is less than three inches.

These data confirm the risk factor associated with the frequency of severe droughts in the Northern rangelands.

Table 5 Average annual rainfall at specified locations in the Northern Eastern Province of Kenya in the period 1937 - 1968.*

Inches of Annual Rainfall	<u>Garissa</u>	<u>Habaswein</u>	<u>Wajir</u>	<u>Buna</u>	<u>Mandera</u>
	-----number of years-----				
Less than 3	2	2	NA	1	1
3 to 5.99	3	3	NA	7	2
6 to 8.99	4	1	NA	6	12
9 to 11.99	7	-	NA	4	3
12 to 14.99	7	2	NA	5	4
15 to 17.99	-	1	NA	2	4
18 and over	9	2	NA	4	-
Total years	32	11	-	30	26

*Source Report by R. J. R. Chambers, Report on Social and Administrative Aspects of Range Movement in the North Eastern Province of Kenya, October 1969.

Table 6 Specified locations in NEP for which rainfall was probably less than 6 inches per year in the recent past.

Locality	Years of record	Years of less than 6 inches	Percentage of years less than 6 inches
Garissa	32	5	15.5
Habaswein	30**	6**	20.0**
Buna	30	8	26.7
Mandera	20	3	15.0
Total of areas	112	22	77.2
Simple average of dry areas	23	5.1	19.3
Simple average of totals	--	--	18.8

**This is purely an assumption of "normality" over a 30 year period based on an average or half the differences between the records of Garrisa and Buna.

Table 7 Rainfall annual maximum, minimum and mean 1937 - 1968 and percentage of annual in specific months.

Rainfall	Garissa 1937-68	Ebaswein 1956-68	Wajir 1917-23 1928-69	Buna 1937-68 only++	Mandera - ? -
Annual rainfall in inches+					
maximum	29.8	19.7	33.9	32.9	17.7
minimum	2.7	2.7	3.0	2.9	2.6
mean	11.9	8.7	10.2	NA	9.1

+ Source Report by D. J. Pratt and M. D. Gwne, Rangeland Management and Ecology of East Africa.

++Source Report by R. J. R. Chambers, Report on Social and Administrative Aspects of Range Management of Kenya, October 1969.

2. Data on total purchases of livestock and particularly of immature cattle.

Unfortunately it is difficult to obtain data on purchases and prices paid and there does not seem to be an organized system of specified reporting by LMD, KMC, private traders and butchers. However, some LMD data are listed below. According to a recent unpublished report handed to us in early September 1979 by Mr. A. M. Matai, the LMD purchased 22,846 head of cattle in 1976-77; 1,34 head of cattle in 1977-78 and 23,023 head of cattle in 1978-79 to June 30, 1979 (all purchased since January 1, 1979). In addition to LMD's own purchases of 25,591 head of cattle between January 1 and August 31, 1979, that they assisted KMC in purchasing 7,241 head (5,911 from Lamu, 474 from Laikipia, 647 from Samburu and 199 from Baringo). The Matai report reads, in part, as follows:

"The Livestock Marketing Branch purchased only 1,234 head of cattle in 1977/78 as compared to 22,846 in 1976/77 financial year. The good rains of 1977 and 1978 undoubtedly provided plentiful grazing resources for livestock and this, together with aftermath of previous three years drought, convinced stockowners to build up herds that had been reduced by drought conditions before March, 1977.

"In fact the unavailability of enough livestock for slaughter markets during the 1977/78 financial year worried many people to the extent that others were predicting that Kenya would import meat shortly, contrary to the present position whereby cattle started flooding slaughter markets from May, 1979.

"When producer prices were increased in February, 1978 the producer remained unwilling to sell livestock in large numbers. LMD prices before the increase ranged between Shs. 1.75 and Shs. 2.00 per kilo live weight (LW) but were raised to levels between Shs. 2.35 and 2.50 after February, depending on distance from Athi River plant. These latter LMD prices were not acceptable to producers who were receiving higher prices from stock traders and butchers who could still sell at a profit to slaughterhouses.

"When KMC realised that procurement by LMD for sale to KMC at Cold Dressed Weight (CDW) based on controlled prices was not possible if the Branch were to cover its costs, the Commission, without any consultation, went out to the field and commenced buying from traders and producers at prices ranging from Shs. 3.30 to Shs. 3.50 per kilo LW., that is, at prices some 32% - 40% higher than the known realisable CDW value of the animals. The above price level was more than LMD's by Shs. 1.00 a kilo LW.

"Similarly, AFC realised that LMD was unable to secure immatures for the Project ranchers, who had complained that interest on immature loans was being charged while the ranches continued to lack sufficient numbers of livestock to generate profit." The matter was raised in the Project Co-ordinating Committee meetings where it was recommended that AFC and LMC jointly take steps to procure immatures, the former buying on behalf of ranchers and the latter quarantining them on payment of grazing fees. In order for AFC to compete adequately with KMC the ranchers decided on the price of Shs. 3.40 per kilo LW. LMD was to pay for animals and authority was obtained.

"The two organisations went to the field, AFC concentrated its operations in Isiolo, Marsabit and Tana River while KMC operated in Lamu, Laikipia (Mukogodo), Samburu, West Pokot and Baringo. Thus LMD was priced out of Market as producers and stock traders moved their stock to these operational areas to catch the best prices prevailing. Although LMD was not buying animals, it was fully assisting KMC and AFC in providing weighing and holding ground facilities, trekking to railheads and transportation, partly on payment and partly on subsidy basis.

"LMD continued to be priced out of market until December, 1978. Meanwhile KMC and AFC were busy buying animals with considerable difficulties due to competitive prices with the private sector still paying higher prices for slaughter animals."

RECOMMENDATION

LMD should make a special effort to buy from Northern rangeland pastoralists a higher percentage of younger steers and pay a somewhat higher price per kilo to draw them off the range.

Such a policy (if economically sound) would have obvious advantages. It would permit an increase of about 15 to 20% cow numbers on range areas (thus a greater production of calves); it would reduce the risk factor (ranch conditions being better than range conditions); it would increase the gain of the 2 to 3 year olds moved to ranches (as a result of the better pasture); and finally, it would increase total beef production.

Table 3 1978 NEP Recorded Livestock Sales*

Area	Cattle	Sheeps	Camels	Donkeys
Wajir District	446	3,095	222	-
Mandera District	280	3,850	200	50

*Source Report: NEP Livestock Marketing Branch Annual Report 1978.

3. How many animals were consumed in the NEP?

The evaluation team notes that the figures in Table 3 are for sales only and thus do not include the animals slaughtered for consumption by the pastoralists and their families. On the basis of the sales of hides and skins and other information reported we believe that commercial sales figures for local slaughter for the NEP especially for sheep, goats and bull calves greatly underestimate the actual numbers of livestock slaughtered for consumption there.

Let us examine the numbers of hides and skins recorded as sold in the NEP in 1977 (excluding those from Somalia and Ethiopia). The figures for skins and hides in 1977 were 253,058 sheep and goat skins, 2,367 cattle hides and 319 camel hides. Some of these could have come from animals which died in 1976 from drought and some perhaps as much as 10 or 15% might have come from animals which died from other causes. However, one assumes that only 50% of the hides and skins sold in 1977 represent animals slaughtered and consumed in the NEP, the figures would be: 125,000 sheep and goats, 1,5000 cattle, and 410 camels. There is a need for compiling regular estimates of home slaughter and consumption and perhaps RMO block officers could include such estimates in their monthly reports.

V. ECOLOGICAL IMPACTS OF PROJECT

A. Introduction

Ecology can be described as the overall study of the interdependence of living things. This will include various ecosystems, either large or small, the communities within these ecosystems and the individual components identified as part of the community. An ecosystem, then, may be considered to be a group or collection of various and diverse plants and animals which form an interdependent amalgamation or assemblage in a physical or chemical environment. Hence, an ecosystem can be made up of any number of environmental conditions such as a vast desert, a semi-desert rangeland, a mix of cultivated crops, a hay field, part of a stream, a pond or even that bit of space under a small flat rock.

The ecosystems considered under or within the National Range and Ranch Development Project are those involving the physical environment, which includes the kinds of vegetation growing there, the wildlife and their habitat and the needs of the domestic livestock owned by the nomads in the North Eastern Province, and those owned by the more or less sedentary people of the cooperative/group ranches and the company/commercial ranches in other parts of Kenya.

B. Impact on Ecological Balance

If, to the animal herder or stockman, "all flesh is grass," then the limiting factor in grass, forage and browse production is rainfall. In the NEP of Kenya, as in some other parts of East Africa, rainfall is erratic and unreliable; unreliable meaning that rainstorms are widely scattered and that when it does rain, the storm front may be only a few miles wide with some localized areas receiving no rain at all during the "normal" growing season, furthermore, the variation from season to season and year to year and wide fluctuations in cyclical precipitation, make rainfall patterns very difficult to predict. In some areas several years of good rainfall may be followed by a number of years of little rainfall. These tend to be grouped in somewhat of a stratified random pattern rather than via purely random fashion.

If one looks at a climatic map showing the directions from which the rains come it is readily apparent that wind direction and wind forces are major factors in determining rainfall. Not only is the wind responsible for evapotranspiration, but wind erosion of the soil, destruction of plants by its very force as well as plant abrasion from soil particles carried by it.

Adding to the problems encountered in the semi-arid North East, in addition to the erratic and unreliable rainfall and the strong winds, are the very high rates of evaporation and

transpiration. The intense radiation, the general low humidity and warm temperatures and unfortunately for this ecosystem, its plants and animals, the low elevation, hot bright sun and clear skies all promote a high rate of water loss to the atmosphere.

The kinds of vegetation growing in the area is determined by a number of factors. First the soil, its structures depth of top soil, if any, its ability to retain moisture and its fertility. Next, the altitude, the length of day, length of dry periods, and the presence or absence of salts, just to name a few.

Two categories of plants useful for domestic livestock, i.e., shrub and grasses are described as being present. Among these are desert shrub - desert grass, salt desert shrub and other desert shrublike plants. Among the grasses: high grass - low savanna, acacia - tall grass, acacia desert grass savanna, desert grass and marsh or swamp grass. The latter growing in the Lorian Swamp.

Fire, grazing, full cutting, soil erosion, drainage, cultivation, catastrophic flooding as well as the modification of the environment by the vegetation itself through climax succession will change or alter the ecosystem and its communities.

One of the main objectives, then, of range management is the maintenance of those communities of desirable plants, such as the perennial grasses at an optimum level for greatest use by the cattle, sheep, goats and donkeys owned by the pastoralists struggling to survive in such a harsh and hostile environment.

In an attempt to increase animal offtake, overgrazing of the perennial grasses can be the beginning of range deterioration. This practice reduces plant vigor and if continued over a long period will destroy the perennials and leave only the annuals which are short lived. This allows unpalatable plants, usually thorny bush, to take over the range, thereby reducing its carrying capacity. Instead of increasing animal offtake, those who insist on overstocking the range and overgrazing, succeed only in reducing it.

During Phase I of the NRRD Project in the North Eastern Project, the grazing blocks of the pilot project were found to be too small in a number of cases and plans were made to increase the size of several of them at an opportune moment, but because of the severe drought that took place in the Horn of Africa between 1973 and 1976 rangelands in much of Ethiopia, Somalia and Kenya were unable to support the numbers of livestock then present and the pilot project was overrun by an influx

of animals ultimately reducing it to severely damaged range. However, the pilot project did succeed in keeping alive animals that might otherwise have died from thirst and starvation. Much is to be learned from a project whose design failed to consider the need for larger blocks where rainfall patterns were so erratic and unreliable.

In Phase II pans and reservoirs were dug and boreholes drilled in an expanded area to supply water to the livestock using the range. Observation of the areas around some of these water points show deep paths radiating outward for up to three kilometers and the area where livestock wait for a drink entirely denuded of palatable vegetation. Wells and reservoirs placed strategically throughout the range are devices that should be used to control the grazing of animals.

C. Relationship with Wildlife

The tourist industry in Kenya is based on wildlife with a number of game parks offering facilities to observe and photograph all kinds of local wild fauna. The elephant, buffalo, zebra, giraffe, black rhinoceros, hippopotamus and such antelope as wildebeest, Thomson's gazelle, Grant's gazelle, impala, dik-dik, kudu, gerenuk and other ungulates can be seen readily by the visitor. Lion and cheetah can also be found, but, of course, not in such large quantities as the grazing animals or other herbivores.

The wild animals in Kenya, or in much of East Africa for that matter, are not confined to the game parks or animal preserves, but will be found on farms, ranches and rangelands where they compete with the domestic animals for food and water. In some cases they contribute to the spread of various diseases, or their grazing or browsing may change the kind of flora in a given environment.

No attempt will be made here to discuss wildlife conservation or wildlife management or other problems, but only the relationship between wildlife and domestic animals owned by ranchers and pastoralists.

Grass is the mainstay of cattle and sheep and of wild animals such as zebras, wildebeests and buffalos. Elephants, impala goats, gazelle, and eland will graze or browse although the amount and kind of each will differ according to specie. On the other hand, gerenuk, dik-dik, giraffe and black rhinoceros will ordinarily depend on browse for most of their food intake.

In most places in Kenya where elephants are found they are instrumental in the changing of woodland to grassland by

severely damaging or destroying trees and large shrubs. The changes in the vegetation climax favor grazing animals and this seems to be part of long natural cycle in which the habitat of a large number of such species is improved, or changed, materially. Elephants also play an important role in the changing of the environment by digging holes for water in dry sandy wadis or watercourses. They have been known to damage water pipes, pumps and reservoirs and in several instances have destroyed or damaged above ground cisterns which had been built to hold water for cattle.

Wildebeest are one of the most numerous of the antelopes and inhabit grassland and open wooded grassland and are especially concentrated in the Masai land along the Tanzanian border. They are migratory, live in large herds and can consume vast quantities of grass. Where they concentrate around watering places the grass will be heavily grazed and trampled and may take several years to recover.

Wildebeest also spread a virus disease known as contagious catarrh to cattle, sheep and sometimes to man. At this time, there does not seem to be an effective treatment for this disease which occurs most often at parturition. If cattle or sheep graze in those areas where wildebeest calving has taken place the incidence of the disease can be particularly devastating. In some cases Masai ranchers have reported very high death losses of cattle, especially those ranchers whose grazing land is in the path of wildebeest migrations or near game parks and preserves.

Lions prey on Thomson's gazelles as they are quite abundant, probably the most plentiful antelope in East Africa. Lions in the Coastal Province of Kenya, however, have been predators of cattle in that region. Ranch managers have cited numerous occasions where old or lame animals have killed and eaten bulls, steers, cows and calves, possibly because of the ease by which they could satisfy their hunger even though gazelles were preferred.

D. Implications for Desertification

Pastoralism, or the extensive herding of livestock, is practiced in arid and semi-arid regions of the earth where rainfall is insufficient to permit cultivation of crops. Desert encroachment or desertification are terms presently used to indicate range deterioration and, for some time now, range experts have been particularly concerned with the problem.

Nomads depend on their livestock for a living and must resort to migration seeking water and forage for their animals. Since there are many theories as to the causes of land deterioration, an attempt will be made to include several of them.

These include population pressure on a given area calling for more animals grazing there and destroying the balance of nature; the nomads' desire for larger herds and flocks in an attempt to achieve social status and power; natural events such as drought, disease, or political developments; or social and economic conditions. Agricultural practices in areas of marginal rainfall must also be given as a possible cause of range deterioration.

The semi-arid area of the NEP of Kenya is almost totally restricted to pastoralism as the rainfall patterns there delimit farming to those areas with irrigation.

In flying over the area during the week of August 27, it was quite apparent that the soil cover was less than 50% with small trees and bush making up the greater part of the canopy. The bare red and brown soils were covered with innumerable tracks made by grazing and browsing animals and many rills, ditches and gullies could be seen.

If the dry period continues for some time the livestock will be even more concentrated at the few pans and reservoirs still containing water. Severe erosion damage has already taken place around a number of pans and reservoirs.

The whole region is one of delicate floral balance and unless great care is taken to coordinate the grazing blocks with water availability, soil and wind erosion will take its toll. First the top layer of sandy soil will begin to move, slowly at first, then more rapidly as the sand particles cover the small grasses and low forbes. Desertification will have begun. (See Annex 8)

E. Water - Projections for the Future

Water requirements of wild as well as domestic range animals will vary according to the species of animals involved and the ecological conditions found in any particular environment. The need for both seasonal and permanent water supplies in a greater part of Kenya is one of the most important aspects of development as no animal, including man, can live without water.

In the ranch and range development project, good water management is essential to achieve a natural balance between forage production, its use and water availability. Permanent and intermittent streams, reservoirs, pans or tanks, hand dug wells, boreholes (drilled wells), springs, rock catchments and crude sub-surface dams have all been used to collect, hold and distribute water. In many cases ranchers are using water from springs and lakes which has been piped over long distances from the source of supply. In the latter case, the water is metered and a charge is made per unit of water used.

The Ministry of Water Development is charged with the responsibility to supply water where it is needed on the ranches and range and it is endeavoring to supply it as rapidly as its present equipment and available technicians can move the program forward, but still not as rapidly as the plans called for.

Each year, during Phase I and Phase II, reservoirs and pans have been constructed in the NEP, but after several years of use these have silted in to various degrees. The small catchments were planned and built to be seasonal in that they were meant to dry up after the wet season, thereby forcing the nomadic herdsman to move his camels, sheep, goats and cattle to other areas to avoid overgrazing in that particular grazing block. The larger reservoirs were planned to supply permanent water in those range blocks where the livestock would have adequate forage and feed during the dry season.

In those places where surface impoundments were not considered to be feasible because of various terrain features, a large number of boreholes have been drilled. Even though the sites selected to drill were chosen by professional hydrogeologists, there were some holes that failed to deliver the expected water, others produced only limited supplies whereas still others produced water with high salt content. Fortunately, there were enough wells that produced good clean water, and that in abundance, to make boreholes a practical source of supply.

In the original design of the NRRD Project, the boreholes were to be equipped with submersible electric pumps and they were to obtain their electricity from diesel powered generator sets. Many of the boreholes were completed two or even three years ago, but up to this moment very few pumps or generator sets have been delivered to these sites to make them operational. There are a number of pumps in Nairobi, but due to administrative reasons have not been installed.

Now that petrol and diesel fuel are in limited supply, and distances so great, the original plan to pump water from these boreholes using submersible pumps and generator sets may no longer be economically feasible, and some other means should be utilized to deliver the water to the watering troughs.

In this area of North Eastern Kenya winds capable of turning windmills for the pumping of water from these boreholes would appear to be quite adequate, especially during the dry months of the year when the water is most needed and the winds strongest.

Boreholes to supply water are also needed along the trekking routes where cattle have to be driven on their way to market.

Since there are no water points for long distances along these routes, livestock marketing cannot take place during the dry season or during periods of drought when the range blocks will by necessity need to be destocked.

Many shallow wells are found at Wajir and Griftu. These, in most instances, were hand dug by pastoralists some as long as one hundred years ago. Water is lifted from these wells by hand and at Wajir large numbers of animals were seen at the troughs either drinking or awaiting their turn.

The search for water must continue and the best means to move it to where it is most needed may not be by highly technical devices. The Archimedes screw, the shadcof or the waterwheel may need to be considered in order to accomplish this end.

In conclusion then, it appears that the limiting factor in the development of the Kenyan Ranch and Range Project is water, or lack of rainfall, its periodicity and the vagaries of the westerly winds and their wanderings from normal windflow patterns, bringing drought to East Africa and its resulting hardships to man and beast alike.

RECOMMENDATION

Animal numbers should be limited to the amount of usable forage, its location and accessibility, and the availability of wholesome drinking water to fit a range management plan which will reduce the wild fluctuations in stocking rates and ultimately overgrazing.

VI. SOCIOLOGICAL EFFECTS OF THE PROJECT

Assessment of the sociological effects of this project on the pastoral societies involved is one of the challenges placed before the evaluation team. Much has been written about this subject by anthropologists and sociologists who have studied the matter more intensely and for longer periods of time than the exercise which this document reports.

Among the publications reporting such studies listed in Annex 13 of this report, are those by Pratt & Gwynne, Sandford, Falaty, Jannke et. al., Schneider, Shariff, Helland, Chambers, Lewis, and Reader. This section relies heavily on those writings, as well as the evaluation team's interviews and observations.

There seems to be concensus among writers on this subject that pastoralists cultures are different from those of other groups, and they are under pressure. Every society is under the countervailing pressures of continuity and change. There are forces trying to preserve the old ways --- the means of survival and the values, norms and behavior patterns which enable that society to survive in its' ecosystem. And there are forces for change -- sometimes from inside the group, more often from outside. These are the pressures exerted by those with greater power, and they usually fly the flag of modernization or development.

Reader contrasted pastoralists with agriculturalists in Kenya as follows: "Some figures demonstrate the relative support capabilities of the two life-styles: of Kenya's land area of 569,000 square kilometers, only 15 percent is arable and 95 percent of the country's 14 million people live there, which works out to 155.3 people per square kilometer. In the pastoral areas, comprising about 421,000 square kilometers, there are 700,000 people, 1.7 to the square kilometer." (Anex 13, Item 45)

Writing particularly about the North Eastern Province, Hellend states that "The meagre resource basis of the area is tapped by a system of nomadic and transhumant pastoralism. We must assume that this system has evolved over time and that it at least has been ecologically viable in the longer term. The regulatory mechanisms that have ensured this long-term ecological viability, however, are harsh." (Bibliography, Item 13)

Both the Somali graziers of the North East and the Masai pastoralists of the Southern Rift Valley area seem typical of

other rural social systems with a basic subsistence economy. They produce their own inputs and they consume their own outputs. They are relatively unspecialized, carrying on such functions as production, supply, and marketing within each clan, along with such functions as governance, health care, personal maintenance, and learning. And all this is done in a physical, cultural, economic, political environment. They are self-sufficient clusters of people who have learned to balance their own level of specialization and energy transformation with what their ecosystem will sustain over time. (See Annex 13, Item 3)

Like other such groups, they tend to recycle materials and energy within each cluster of families, rather than exchange it with outsiders. Groups which recycle, rather than exchange on a market, are called subsistence groups. Information collected by the evaluation team suggests that Kenyan pastoralists tend to recycle from 90 to 95 percent of the materials and energy with which they deal. Although they will sell livestock when there are special needs, or in conditions of drought, they typically milk cattle and camels, bleed cattle, eat the meat of sheep and goats, and use camels and donkeys to help them carry their homes and communities from place to place in search of grazing and water.

In this type of situation, numbers of livestock represent "savings", and are symbols of status and prestige, much the same as a large house, an automobile, or a bank account are for urban dwellers. Large numbers of domestic animals are not necessarily an indication that livestock production for market is feasible. This false assumption has misled many, as indicated above in Chapter II.

Two relevant phenomena are pointed out by Sandford as follows: "As a consequence no one has any incentive to adjust the size of his own herd for the sake of ecological equilibrium, since any grazing saved" by his reducing his herd will be grazing mainly consumed by the herds of other people.

"The low degree of commercialization in pastoral areas, caused in part by the inadequacies of the livestock markets, and the poor availability of consumer goods suitable for pastoralists, and the fact that pastoralists have little possibility of investing in other parts of the economy, mean that pastoralists are more interested in accumulating large numbers of livestock, albeit of low quality, for traditional social use, or as insurance against future losses, than in maximizing the cash value of sales through improvements

in the weight and quality of animals sold and in the regularity and reliability of their supply." (Annex 18, Item 47)

Perhaps the Somalis are more inclined to sell on the market than are the Masai, but in both cases, it is a relatively small portion of holdings which are for sale. As with other rural social systems, it tends to be the well-to-do owners of large herds who are on the commercial market. The low-income pastoralists, who are the target of the AID project, tend to need all of their animals for family food supply, and are least likely to be in the market, or turn "commercial".

In light of that situation, the basic assumptions of the AID-supported National Range and Ranch Development Project, particularly those associated with annual cash "income", seem unwarranted. If the project succeeds the present cultures of the pastoralists will tend not to survive. In that sense, the impact of the project upon pastoral societies will militate against continuity and favor change. In other words, it will be part of the forces tending to decimate present social systems and replace them with something different.

One might ask what kind of a humanity it is which makes great effort to preserve such "endangered species" as the wildebeast, the zebras, the gazelles, and the impalas... and does so at the expense of human cultures which are thus destined for extinction.

The other side of that question is that all human groups change over time. It is the flexibility and resiliency of humanity which has led to the diversity of cultures, and has enabled each to change with the times. As populations grow, as technologies change, and as land resources become increasingly scarce, perhaps the Earth, and one particular nation such as Kenya, can no longer support a nomadic, pastoral society. If that be the case, then gradual, sensitive, and systematic programs of adjustment may be the most humane alternative.

To pass judgement on these matters is beyond the scope of this evaluation. Its judgement can only be that the marketing systems and credit systems promoted by this project are not compatible with cultural patterns. The group ranch and grazing block organizational attempts are not compatible with "normal" movements of the graziers. If pastoralists had the economic and social power to do so, they would probably resist such change.

Sandford states that "Mobility is now generally, although not universally, recognized as certainly the best, and in some cases the only possible, way of exploiting the seasonally differential availability of the feed resources of drier, hotter, or colder areas. In other areas it can be seen as an appropriate response to political factors." (Annex B, Item 47).

Turning to social phenomena related to the grazing blocks of the North East Province, Helland puts it this way, "Through modifications of the previously existing eco-system, the grazing block project has replaced harsh, direct and efficient natural control mechanisms with a man-made, "soft-approach" control system. The dangers inherent in tinkering with the water/pasture/animal balance seem to have been realized but not followed to the logical conclusion of providing the modified system with controls functionally equivalent to the natural ones.

"This deficiency stems from several misunderstandings and false assumptions about the area. A pasture-rotation system has been designed for cattle husbandry in an area where camels, with quite different requirements, are at least of equal importance. Grazing blocks have been planned under the assumption that clearly defined, localized groups exist and that such groups are tied together in an orderly hierarchical political system with well-defined authority structures. And finally, a policy of leniency and persuasion has been chosen to control scarce resources in a society where force and politico-military power traditionally have been the basic legitimizing principles for access to and use of these resources." (Annex B, Item 13)

RECOMMENDATION: The approach to pastoralists should be modified.

It may be possible to have both increased levels of living among pastoralists and more stability. But this stability does not have to be location specific. Marketing services could "float" from location to location. Even schools and health services could be mobile, moving with the pastoralists, rather than being fixed in one particular place. The Masai might have dips or spraying arrangements for their cattle without confinement of group ranches to particular physical locations. And the Somali might produce a larger off-take of immature cattle if they were free to move in wider patterns than those of the grazing blocks, especially if improved water points and marketing and health facilities were based on this wider pattern of movement.

But the creativity and flexibility necessary to design programs uniquely and appropriately suited to the pastoralists of Kenya are not likely to come from outside donor agencies like AID, nor even from the various ministries of the GOK. These kinds of program modifications are most likely to emerge through the voices of the pastoralists themselves, when arrangements are made for the planners to listen to those voices -- to listen carefully and in depth, with respect for the wisdom which comes through experience. Getting about the business of encouraging those arrangements is the recommendation to those who sponsored this study.

VII REVIEW OF CURRENT PLANNING AND THOUGHTS FOR THE FUTURE

A. Review of Current Planning

Although the evaluation team was not given any document from GOK describing either Phase III or its long-term planning for the livestock program, the team did participate in many discussions with GOK personnel on this matter.

Generally it is our assumption that the GOK plans to continue the NRRD Program in the same format into the future. That is, the plan is to complete the division of the NEP into grazing blocks; organize even more company, cooperative, commercial, and group ranches; attempt to continue to "commercialize" the pastoralists; and expand livestock production in Kenya.

The views of this evaluation team have already been expressed in this report on all these matters. Our strong recommendation is to go slowly. We suspect that it is not in the long-run interest of Kenya to expand livestock numbers in the semi-arid areas. The risk to the environment of desertification is great.

We have suggested that further international development assistance ought to start with the types of technologies normally employed by pastoralists (such as wells), and make gradual incremental improvements in these. We have also suggested that there is not an apparent need for further donor assistance in livestock production loans. Particularly, for AID, we have urged that it not supply such funds, but direct its future assistance to training.

In general, also, we have urged that, both in the donor community and in the GOK, there is great need for coordination, cooperation, and control. Unless the AID Mission is able to build a more adequate back-stopping for its activities in this project, we recommended that it gradually phase into training support only. For the GOK, we have suggested some principles which should be helpful, and have urged that one line of responsibility have authority for all aspects of this program.

We have also made a whole series of recommendations with respect to price policy and other aspects of marketing. We believe these are critical. We believe that additional AID funds should not be provided to this work unless those policy changes are made.

B. Some Thoughts for the Future

The Devres Team has been asked by the AID Mission staff to make some suggestions for future AID activity with respect to this project, particularly in the North Eastern Province.

In the main report we suggested that some of the project components do not appear to us to be in the interest of the "low income livestock producers" who are specified as the AID target group. Neither AID nor GCK inputs are flowing at the planned rate. We believe AID inputs should be stopped, unless more appropriate strategies, policies, and programs are substituted.

The evaluation team is particularly concerned with damage to the environment in the North East, and the negative impact this will have on the people there in the long run. The first indicators of desertification are already evident in the North Eastern Province grazing blocks which we observed.

Denudification, the effects of overgrazing because of lack of livestock control, can be seen easily from the air. The ecosystem of the area is being disrupted; there is excessive pressure of livestock and wild animals on the environment; and this is exacerbated by the apparent lack of control of livestock numbers and movements. Any increase in livestock numbers, without properly managed rotational grazing, will promote the tendency toward a new "Sahel" or "edge" to a Kenyan desert. The failure of prices to rise sufficiently to promote a larger offtake of steers and male calves, plus the absence of assistance with marketing of goats, sheep, and camels will make the situation worse.

Unless this situation is changed significantly, we urge AID to phase out its involvement with the North Eastern Province. As an alternative, we suggest that AID phase over its program to something more appropriate.

Local pastoralists should participate in critical decision making. No construction or installation of any water source should be made unless local pastoralists provide at least part of the initial capital cost (say 25%). Further, these same people should be responsible for operation and maintenance of such facilities. The size and capacity of such water points should be appropriate for the range plan, so as not to encourage overgrazing in the area. Wherever possible, equipment should be manufactured within Kenya, and assembled or installed at the site with local labor.

AID could assist with training of local people for the tasks involved, as well as in testing and selecting appropriate equipment. Training of range officers in languages of the pastoralists, and in practical livestock management, as well as training pastoralists in at least one common language used in Kenya should also be supported by AID..

Any additional water supply for graziers should be contingent on a system of discipline which will control livestock numbers and livestock movements. We believe it is in the interest of both GOK and the graziers to have maximum involvement of the pastoralists themselves in developing and implementing this.

No further AID support should be given to water supply until a system of range monitoring and recording of range trends has been established and is operational. AID may be able to assist GOK in this matter.

Ranching

Any continuation of AID participation in the ranch program should be contingent on:

1. The phasing out of AID funds in loans for the purchase of cattle.
2. The elimination of price controls on beef and the introduction of a differential pricing system for cull cows, calves, feeder cattle (immatures), and others.
3. In the case of group ranches, working knowledge of pastoralist language by range management officers.

Administration

The AID contribution should not continue unless management and implementation are improved. This requires a coordinating unit which can be accountable for performance.

If the AID Mission cannot adequately backstop field operations, and if AID cannot staff this project with its own permanent professional personnel, it might be better to contract with an organization which would provide personnel selection, recruitment, and training, as well as management, administration and accountability in the field.

If such a contract supplied technical personnel, we recommend that it also provide a Team Leader and experienced individuals who have worked in similar jobs in similar locations before. Further, such personnel should be required to learn local pastoralist languages before assignment to field locations.

It is urged that all personnel of such a group be headquartered in the provinces where the pastoralists live.

If the GOK can identify a counterpart Kenyan administrative structure, the contractor and the Kenyan organization should develop their own memorandum of agreement covering who will do what, when, and how. This should be consistent with the agreements between AID and GOK, and with the contract between AID and the contractor.

If the GOK cannot identify a counterpart Kenyan administrative structure which would have full responsibility and a single line of authority, then perhaps AID should not participate.

ANNEXES

ITINERARY OF INTERNAL KENYA TRAVEL OF THE DEVRES TEAM

28th July	Arrival in Nairobi.
28th July - 13th August	In Nairobi to study and review project papers. Also conducted interviews with relevant personnel in GOK and USAID and others involved with the National Range and Ranch Development Project.
13th August	To Voi, Taita/Taveta District to visit company and commercial ranches.
16th August	To Mombasa.
17th August	To Kiboko.
18th August	Return to Nairobi.
20th August	Birkhead and Sudholt to Kojiado to visit group ranches. Axinn in Nairobi
21st August	Axinn and Birkhead to Narok and vicinity to visit group ranches. Sudholt in Nairobi.
23rd August	Axinn and Birkhead return to Nairobi.
27th August	Team left for Garissa.
28th August	Provincial office and dam construction unit, Garissa area.
29th August	Dadwaab block visits.
30th August	Birkhead to Wajir via Modogashi; Axinn and Sudholt on flying survey of pans, dams and forage in NEP.
31st August	Sudholt to Wajir water development compound; Axinn and Birkhead to Griftu.
1st September	Team to Griftu and Nanyuki.
2nd September	Nanyuki area and return to Nairobi.
3rd September 19th September	Team in Nairobi for consultation and report preparation.
20th September	Departure from Nairobi.

ANNEX 2

NAMES OF PERSONS INTERVIEWED

Lawrence Able - Assistant Agricultural Division Officer,
USAID, Nairobi

Abdilaki Aboud - Provincial Range Officer, Wajir, NEP

David Andere - Project Co-Manager, KREMU, Nairobi

Frank Anderson - ILCA, Nairobi

Clint Armstrong - Acting Resident Engineer, Wajir, NEP

F. K. Asonga - Deputy PC, NEP

Lucas Ayuko - Head, Range Management Division, Ministry of
Agriculture, Nairobi

Jared Babu - Manager Mgēno Ranch, Taita-Taveta District

Oliver Baccus - USAID/PASA, Agricultural Engineer, MOWD,
Ranch Water Section, Nairobi

Jeff Barraha - Ministry of Tourism and Wildlife, Nairobi

Mr. Baya - Technical Assistant Ranch Officer, (extension
for group ranches), Kajiado District

David Bishop - USAID/PASA, Range Management, Wajir, NEP

Arthur Chege - Deputy Chief, Livestock Production Unit,
MOWD, Kajiado District

F. K. Chesumbhai - District Range Planning Officer,
Narok District

Lucas Chepkitony - DRO Taita-Taveta District

Andrew Clark - Nanyuki, Kenya

Adrian DeHoad - CIDA, Nairobi

Tom Dimopoulos - IIE/OPEX from USAID, MOWD, Nairobi

Dicen-Hudson - Consultant ILCA, Nairobi

Kenneth W. Eubanks - Food and Agriculture Officer, USAID,
Nairobi

Mr. Gakaria - AFC Branch Narok, Rift Valley Province

Mr. Gakunyu - Acting Manager Taru Ranch, Kwale District

Ezekiel Garissa - Chairman, Giriama Ranching Co., Kilifi District

J. K. Gatheru - Provincial Director of Agriculture, Coast Province

D. M. Gilani - PRO Coast Province, Mombasa

Milt Griffith - USAID/PASA, Ranch Production Training Specialist

C. K. Githingi - District Commissioner, Garissa District

Fredrick Holmes - Ag. Advisor Training, USAID, Nairobi

Dr. Goran Hyden - Program Advisor, Ford Foundation, Nairobi

E. A. Idwasi - Group Ranch Representative, Ministry of Lands Settlements, Nairobi

Geoffry Kailika - Assistant Resident Engineer, Garissa District, NEP

J. N. Kaimini - DRO and DAO, Wajir District

Ian Kariuki - District Agricultural Officer, Garissa District

Mr. Kiarie - District Veterinary Officer, Garissa District

Mr. Kimai - Assistant Range Officer, Wajir District

Mr. Kyoko - Manager Kalalut Block, Wajir District

G. G. Kogi - Manager, Buna Block, Wajir District, NEP

Samuel Koros - Provincial RMO, Rift Valley Province

Mr. Langat - MOWD, Kajiado District

John Latumbo - Manager, Maungu Co. Ranch, Taita-Taveta District

S. S. Lekasi - AFC, Kajiado District

Sten Loof - SIDA, Chief Engineer, Range Water Section, MOWD

Mr. Maingi - Acting Manager, Mado Gashi West Block, Garissa District

Mr. Marindany - District Range Planning Officer, Garissa District

A. M. Matai - Chief LMD, Ministry of Agriculture, Nairobi

Mr. Mayers - Manager, Rukinga Co. Ranch, Taita-Taveta District

G. T. Mbie - Block Manager, Modogashe East Block, Garissa District

G. M. Mbuka - Griftu Block Manager, Wajir District, NEP

Geffry Mbuti - Manager Taita Co. Ranch, Taita-Taveta District

M. K. Mbuy - DRO, Kajiado District

Henry Mobogoh - District Range Planning Officer, Taita-Taveta District

Hamid A. Morowa - Provincial Range Planner, Acting Provincial Range Officer, Garissa District, NEP

Mr. Mpole - Assistant Range Officer, Wajir District

F. K. Muiruri - Land Adjudication Officer, Kajiado District

Gilbert Muiruri - MOW Ranch Water Section, Narok

Mr. Muliro - Permanent Secretary, MOA, Nairobi

C. W. Murage - District Commissioner, Wajir District

Richard Muriuki - Range Officer in Charge of Grazing Blocks, MOA, Nairobi

George Murphy - Group Ranch Section, AFC, Nairobi

Justice Murumbi - Manager, Kiboko Group Ranch, Kajiado District

Mr. Muruthi - AFC, Kajiado District

Alex Musaliko - Acting Manager, Kasigau Co. Ranch, Taita-Taveta District

A. S. Musili - Manager, Udhole Block, Garissa District

Mr. Musyoka - Manager, Lac-Bor Block, Wajir District

Mr. Muthama - Director of Agriculture, MOA, Nairobi

Benson Mwachinga - Manager, Sagala Co. Ranch, Taita-Taveta District

G. K. Mwangi - Manager, Ajao Block, Wajir District

Joseph Mwangi - Economist, Range Management Branch, MOA, Nairobi

Mr. Mwangana - AFC Assistant Branch Manager, Narok

Evans Mweya - LMD, Ministry of Agriculture, Nairobi

Mr. Mwisyo - DRO Kilifi District

P. M. Nderitu - Assistant Manager, Tarbaj Block, Wajir District

Jonathan Ndune - Manager, Giriama Co. Ranch, Kilifi District

Mr. Ngala - Assistant District Range Planner, Kajiado District

N. M. Ngugi - Deputy Provincial Commissioner, Garissa District, NEP

J. R. Njomo - Officer in Charge of Workshop, Wajir District

Mr. Njoroge - District Agriculture Officer, Kajiado District

Mr. Oburi - District Officer, Mado Gashe Division, Garissa District

S. E. Oburu - DC, Narok District

Jackson Ogeto - Technical Assistant, Range-Planning, Kajiado District

Simon Oleseno - Block Manager at Center, Elldin and Daadab West Garissa District

Moses Ololowaya - Adm. Chief, Kajiado Area

A. A. Omwenga - MOWD, Kajiado District

Mr. Onyango - Provincial Veterinary Officer, NEP

K. Martin Oteng'Okwach - Project Advisor, Technoserve, Inc., Voi, Kenya (allied ranching project)

Z. Owiro - Head of Livestock Production Division MOA, Nairobi

Fred N. Pertet - Assistant Director, Projects, Ministry of Tourism and Wildlife, Nairobi

John M. Peter - MOWD Ranch Water Division, Kilifi District

Dennis Purcell - The World Bank, Regional Mission in Eastern Africa, Nairobi

Mr. Randu - Manager, Lualenyi Co. Ranch, Taita-Taveta District

Glenwood P. Roane - Director, USAID

E. M. Kachula Ruel - Head, Ranch Loans, AFC

Mr. Sangao - Chairman, Kilonito Group Ranch, Kajiado District

W. M. Soc - Livestock Marketing Division, Wajir District

William Tatua - Chief, Range Water Section, MOWD

N. Towett - Provincial Range Planning Officer, Rift Valley Province

T. K. Tuel - District Agriculture Officer, Narok District

Mr. Ugi - AFC Branch Manager, Voi, Taita-Taveta District

Dale E. Vining - Agricultural Attache, U.S. Embassy, Nairobi

Mr. Wagura - DRO, Garissa District

P. G. J. Waitaka - DC Kajiado District

G. K. Wangi - Manager, Ajowa Block, Wajir District

Mr. Waringi - AFC Branch, Nakuru, Rift Valley Province

W. Yabaan - DRO, Narok District

Awodh Yislam - Principal, Griftu School NEP

Mr. Zuma - Manager Dadaab West Block, Garissa District

Graziers committee representatives from Kibako and Poka Group Ranches Kajiado District

Grazier committee representatives from Kilimato and Elangata Wuas Group Ranches, Jaiado District

Graziers committee representatives from Suswa-Kitet, Olkeri, Lemek and Loiyaki Group Ranches, Narok District

Graziers committee representatives from Kalalut Block Wajir District

ANNEX 3

List of AID Personnel Associated with ProjectNational Range and Ranch Development ProjectPASA Personnel

Name	Position	Tour of Duty	Location
Fred H. Mass	Range Management	4/9/69-7/24/71	Phase I
Maurice Mundorf	Senior Hydrologist		Phase I
Billy Muldowney	Range Management		Phase I
Wolfgang Swarzenski	Hydrologist		Phase I
Robert C. Kornegay	Agricultural Engineer	4/9/69-6/28/75	NEP
Robert E. Gray	Agricultural Economist	7/26/70- 12/15/76	Nairobi
Robert B. Ellsworth	Agricultural Engineer	10/2/73- 10/6/77	Nakuru
Neil McClymonds	Hydrogeologist	10/8/73- 12/6/77	NEP
Joe L. Frazier	Range Planner	10/5/73- 3/21/75	NEP
Leonard Hendzel	Range Planner	10/20/73- 7/26/75	Coast
Billy H. Hardman	Range Planner	10/2/73- 7/30/75	Rift Valley
Dayton D. Nelson	Agricultural Engineer	12/5/74- 11/10/76	Mombasa, Coast Provincia
John C. Dunmore	Agricultural Planning Economist	4/21/75- 5/15/77	Nairobi

National Range and Ranch Development Project

PASA Personnel

Name	Position	Year of Duty	Location
James L. Mower	Range Planner	7/16/75- 7/15/77	NEP
Milton J. Griffith	Ranch Planner	7/17/75- Present	Coast
Amon J. Garner	Ranch Planner	7/18/75-7/77	Nakuru
Leslie Paul	Civil Engineer	8/11/75- 7/16/77	NEP
John T. Larsen	Agricultural Economist and Assistant Program Coordinator	2/1/75-8/20/79	Nairobi
Clinton Armstrong	Agricultural Engineer	11/3/78- 11/3/80	Wajir
David R. Bishop	Range Production Specialist	5/26/79- 5/26/81	Wajir
Oliver Bacus	Civil Engineer	6/1/79-6/1/81	Nairobi
Philip Childs	Civil Engineer	8/23/79- 8/23/81	Rift Valley and Narok

National Range and Ranch Development Project

OPEX Personnel

<u>Name</u>	<u>Position</u>	<u>Tour of Duty</u>	<u>Location</u>
Robert H. Bartolo	Roads Engineer	9/1/75-1/31/77	
Jack C. Gunther, Jr.	Equipment Manager	12/1/75- 11/30/77	Nairobi
Edwin S. Hovatter	Superintendent of Heavy Equipment Maintenance	11/19/75- 11/20/77	Wajir
Melvin S. La Forge	Equipment Maintenance	10/31/75- 10/30/77	Wajir
Edward W. Tates	Equipment Maintenance Specialist	10/23/75- 10/22/77	Wajir
Craig Eisen	Hydrogeologist	8/3/78-7/1/79	Wajir
Tom Dimopoulos	Hydrogeologist		
Zahoor Malik	Heavy Equipment Maintenance	12/19/78-	Wajir

ANNEX 7

National Range and Ranch Development Project

USAID Project Manager

<u>Name</u>	<u>Tour of Duty</u>
Frank Abercrombie	1972-1974
F. Leroy Hoffarth	2/74-
Lawrence J. Abel	7/27/78-7/27/80

Excerpts from USAID
Area Auditor General's Report,
East Africa, Nairobi

Review of USAID Development Activities in Kenya
Audit Report No. J-615-79-06, 1/30/79

LIVESTOCK DEVELOPMENT

Activities under the Livestock Development project were behind schedule. Delays occurred in utilizing the funds to be subloaned by the Agricultural Finance Corporation because of administrative problems, high cattle costs, and depressed meat prices. Delays have also occurred in activities intended to develop and improve livestock grazing areas because technical assistance positions have remained unfilled for extended periods. Also large percentages of vehicles and equipment were deadlined because of a shortage of spare parts and technicians.

Project Reporting

Project reports were not sufficient to determine if goals were being achieved. While the project agreement does not require reporting in this detail, we believe that data on the number of beneficiary ranches and identification by name and location; and the procurement of livestock by type of ranches is essential to project monitoring because project goals are stated in these terms. We believe the USAID/Kenya should request the Agricultural Finance Corporation to provide the above information in its quarterly reports and require the loan-funded technicians to submit quarterly progress reports and end-of-term reports.

Commodity Management

Improvements are needed in the management of the equipment, spare parts, and fuel furnished under the Livestock Development Project. Some equipment has been omitted from progress reports. Also, a high percentage of the equipment has been deadlined for long periods of time, and difficulties had been encountered in recruiting skilled (Kenyan) personnel. Fuel had not been properly accounted for either.

Throughout the project life, there has been a high percentage of inoperative equipment. This is explained in large part by the vacancies in the equipment maintenance positions and the shortage of spare parts. As a result of transportation shortages, US technicians assigned to this project in the Northeastern Province had been able to visit field sites only infrequently.

During visits to field locations, we were advised by GOK officials that the lack of spare parts is a major problem, and they stated that major pieces of equipment had arrived one or two years prior to the receipt of any significant quantity of spare parts.

The Government of Kenya has had difficulty in recruiting skilled Kenyan personnel willing to work in the remote Northeastern Province. As of September 30, 1973, only 44 of the required 67 mechanics, welders, electricians, warehousemen and machinists had been assigned. Of those assigned, only 29 were skilled staff.

Reimbursement

The Mission made certain reimbursements to the GOK for the local purchases of spare parts. Some were improper. The amounts included purchase orders which were never concluded and purchase items for ineligible items.

National Range and Ranch Development

Progress toward reaching the goals established by the project paper was about two years behind schedule for most activities. Technical assistance provided was less than 50% of planned quantities during fiscal years 1977 and 1978. Because of changes in project plans the project paper and project agreement were out of date and the project may be overfunded as a result. The delays encountered in implementing this project can be attributed in large measure to the inability to get key technicians assigned.

The United States Department Agriculture did not provide suitable candidates for one ranch planner and three civil engineers. In early November, 1973, a civil engineer was assigned to the Northeastern Province Project. The three remaining vacancies are not expected to be filled in the immediate future. Since the USDA apparently has a limited pool from which to draw the necessary technicians, we believe the Mission should explore other sources for technicians.

SUMMARY USAID AREA AUDITOR GENERAL EAST AFRICA JANUARY 30, 1979

Personnel assigned or provided under contracts or Participating Agency Support Agreements have been delayed in arrival and technical positions have remained vacant for extended periods.

The Government of Kenya has difficulty in providing qualified counterparts in the required numbers to implement projects on schedule.

Equipment and spare parts did not arrive in a timely manner.

There were long delays in placing Kenyans in appropriate training in the U.S. This appears to be more of a case of placements in U.S. institutions rather than a shortcoming of the Government of Kenya or the USAID Mission.

Kenya's financial ability to maintain projects after completion is being stretched to a critical point. This is not an unusual problem in the developing world, but it could result in the deterioration of projects once U.S. support terminates.

Project evaluations have not been made as scheduled and in some cases the findings in expensive contractor performed evaluations have not been acted upon. We believe that the appointment of a more senior official as evaluation officer could improve this situation.

I Livestock Development Program

1. Activities behind schedule
2. Delays in utilizing funds for loans by AFC
3. Delays in improving livestock grazing areas
 - a) technical assistance positions were unfilled for a long time
 - b) large % of vehicles and equipment inoperative
 - 1) shortage of spare parts
 - 2) shortage of technicians and mechanics

A. Implementation

As of September 30, 1978, over 3½ million of the 4.1 million dollars for subloans by AFC to ranchers have not been made

Because of this the GOK and AID Mission transferred one million dollars to developing and improving livestock grazing areas and production.

3. Project Reporting

Dearth of reports
No way to measure progress.

C. Commodity Management by GOK

- a) Not all equipment listed in reporting
- b) High % of equipment deadlined for long period
- c) Recruiting skilled personnel difficult
- d) Improper documentation of fuel use
- e) Trucks not used for project, but assigned elsewhere
- f) Expat. technicians unable to visit sites due to lack of transportation
- g) Spare part arrival tardy
- h) GOK often unable to recruit skilled personnel to work in N.E. area
- i) Fuel use unaccounted for - poor record keeping - drum breakage - drums of fuel on site not as recorded
- j) No Mission approval of sub-loans made by AFC

II National Ranch and Range Development of GOK

- A. Progress toward reaching goals 2 years behind schedule
- B. Technical assistance to be provided less than 50% of that planned
- C. USDA failed to provide one ranch planner and three civil engineers

ANNEX 5

LIST OF AID PARTICIPANTS

<u>Participant</u>	<u>Degree Obtained</u>	<u>Position as of August, 1979</u>
1. A.A. Aboud	B.S., R.M.	Provincial Range Officer, North Eastern Province
2. F.N. Chabari	B.S., R.M.	---
3. L.K. Chepkitony	B.S., R.M.	Range Officer, Voi
4. F.K. Chesumbai	B.S., R.M.	Range Officer, Narok
5. D.M. Jilani	B.S., R.M.	Range Officer, Mombasa
6. J.K. Kibera	B.S., R.M.	---
7. E. Maratim	B.S., R.M.	---
8. H.G. Moogott	B.S., R.M.	---
9. M.K. Mbui	B.S., R.M.	Range Officer, Kajiado
10. H.A. Morowa	B.S., R.M.	Provincial Range Planning Officer, (NEP) Garissa
11. A.M.W. Mukhebi	B.S., R.M.	University of Nebraska, U.S.A.
12. J.A. Mutea	B.S., R.M.	---
13. J.M. Muteti	B.S., R.M.	Range Officer, Range Management Headquarters
14. J.H. Mwangata	B.S., R.M.	---
15. Z.J. Mwangi	B.S., R.M.	Agr. Economist, R.M. Branch Ministry of Agr. Headquarters
16. J.M. Ngoru	B.S., R.M.	Range Officer, Nyahururu
17. S.B. Shaabani	B.S., R.M.	Range Officer, Kajiado
18. Henry Wamukota	M.S., Ag. Ec.	Agricultural Economist, Headquarters

<u>Participant</u>	<u>Degree Obtained</u>	<u>Position as of August, 1979</u>
19. S. Wanyeki	M.S., Hydro.	Hydrologist
20. W. Yabaan	B.S., R.M.	
	<u>Short Term</u>	
21. L. Ayuko	---	Head, Range Management Branch, Nairobi
22. A. Chege	---	Deputy Chief, Livestock Production Division
23. P.W. Kamani	---	---
24. E.N. Kamau	---	---
25. J. Kibe	---	---
26. D.J. Kingori	---	---
27. J.A. Kulumbano	---	---
28. M.B. Maalim	---	---
29. J.D.M. Maina	---	---
30. H.A. Morowa	---	Provincial Range Planning Officer, Garissa
31. E.T. Mwamunga	---	---
32. P.G. Mwangi	---	---
33. E. Ngunya	---	---
34. A.N.N.J. Uguna	---	O.I.C. Borehole Equipment Unit
35. S. Shabani	---	Range Officer, Kajiado
36. G.N. Wawera	---	---

ANNEX 2

Edwin S. Hovatter- Superintendant Heavy Equipment Maintenance OPEX

TERMINATION OF CONTRACTUAL AGREEMENT PRIOR TO EXPIRATION OF TOUR OF DUTY

Extracts from the letter of resignation to Mr. Elgin Cornett, Project Coordinator, Near East Foundation

Dear Mr. Cornett,

This is in answer to your request for reason of my resignation. My reasons are as follows:

1. Answers to my questions during Near East Foundation negotiations were found to be inaccurate upon my arrival in Kenya.
2. I define the position of Mechanic Supervisor as someone superintending groups of mechanics doing certain areas of work. This not the case at Wajir Project.
3. The work allocated by me to the mechanics were undercut by Kenyan supervisors who determined what the men should do. Cannot train and instruct the situation.
4. Have repeatedly requested weekly or monthly staff meetings at Wajir from the equipment and management specialists in Nairobi, but to avail. I have no authority.
5. None of my special capabilities have been used. You will find upon looking at my file that I was a successful mechanic, instructor and shop foreman in operating a successful General Motors Dealership, as well as a modern Diagnostic and Repair Center for trucks and autos. I also had a successful 2 years as machinery and equipment specialist in charge of all maintenance and repair at the very large Faisal Settlement Organisation in Arabia, with a very much larger inventory of heavy equipment and autos than this project. I am very proud of my achievements in my profession and have never regretted my decision to retire from private business and help in underdeveloped countries until recently.
6. This position only needs a machinery mechanic and not a Superintendant of heavy equipment maintenance.
7. I am sure, however, that if qualified people who know how or would delegate responsibility to others instead of trying to do it all themselves, that this could have been a very satisfying and worthwhile project with which to be affiliated.

A Note on "The Logical Framework"

Application of the basic concepts and the operational procedures of U.S. Agency for International Development Project Evaluation Guidelines, and particularly the "Logical Framework" which is at the core of the process, leads to insights which may be considered to be of value.

Following the logic of the procedure, inputs are made on the basis of certain assumptions relating to the EOPS, or beginning of project status. These assumptions can be classified into two groups: those relating to the situation in the Host Country and those relating to the inputs themselves:

In a project such as the NRRD, both assumptions of the first and second type may be considered controversial. That is, opinions of experts are never unanimous on such matters, and in a case such as the present one, there is sufficient doubt as to the soundness of both types of assumptions. To the extent that such assumptions were unwarranted, the very foundations of the logical framework are shaken, and its utility as a management tool eroded.

In a case where basic assumptions are unwarranted, if the inputs should lead to the originally specified outputs, that may reduce the probability of those outputs contributing to specified purposes, and to the achievement of the goals of the project. Since indicators at all levels above the provision of inputs are difficult and costly to measure, the lack of relationship between inputs and outputs, as well as the negative or positive nature of the relationship between outputs and goals, or lack of any casual relation, as well as such relationships which may or may not exist between stated purposes and asserted goals, are rarely brought to view. In a project such as the Kenya NRRD, this is indeed fortunate from the perspective both of the host country nationals who are involved and the host of donor agencies which are providing resources.

Following the logic of the framework, all indicators of extent to which inputs have in fact been put in suggest an unusually high level of failure. Success in the participant training component seems counter balanced with gross ineptness with attempts to deliver commodities... and both of those rendered inconsequential by technicians and their counterparts. However, the assumptions at the second level, regarding the relationship between outputs and purpose, also seem based on unwarranted assertions. To the extent that that be the case, then it probably contributes to the achievement of eventual goals that the outputs were not achieved.

More specifically, since there is apparent danger of desertification if herds sizes increase, and since herd size increase is predicated on successful provision of increased working water points, the failure of the outputs of water points to be achieved may, in the long run, be one of the more successful aspects of the total project.

Since the pastoralists of the North Eastern Province seem to be organized on the basis of families and clans, rather than on the basis of territory, the assumptions underlying organizational contributions, and a new system of discipline in the Northeast involving restricted movements within designated grazing blocks, replacing an indigenous system of harsh discipline which had, in fact, protected the environment and the ecosystem over the years, may have been less than appropriate. However, the ineptness of implementation of an otherwise questionable plan, may contribute to the survival of the people, their livestock, and the other plant and animal components of the ecosystem.

Probably there were certain professional aspects of the original assumptions which were appropriate and valid. However, they tended to relate to the basic biological phenomena associated with the grazing lands, the water supply, and the cattle. The extent to which such other factors as the social and behavioral patterns of the pastoralists themselves, their value system with respect to the various types and classes of livestock, the nature of their relationships with cattle, goats, sheep, and donkeys, as well as with cattle; to say nothing of "outside" pastoralists who may be transient in the area from time to time, and may reflect grazing and livestock situations outside of the whole district, as well as outside demand for cattle and other species as reflected in price...and still other factors were taken into account is in doubt.

Assuming that in any project of this sort, there is a professional core of technical change, which may and may not be appropriate, there are always other considerations on both the host country and on the donor side which impact upon the project design. These include the human constraints mediated by the culture of the peoples on both sides, including their food, clothing, shelter, transportation, health, family affairs, religions, etc.; the administrative constraints on each side, including all of the rules and regulations affecting such every-day matters as personnel selection, assignment, transfer, payment, promotion, training, etc., purchasing arrangements, transportation, and so many others; the political constraints, which typically press donors to

do this or that to satisfy some legislative or executive policy of the moment which has very good reasons for being in the home office, but may lack relevance on the scene, and which also affect the relative priority which host country personnel are able to allocate to particular projects; and finally, the international and diplomatic constraints which are always there, and set the tone, pace, and magnitude of such projects. While the present project may and may not have been well designed from the perspective of certain aspects of its professional core, examination of the human, administrative, political, and diplomatic aspects could lead evaluators to question it in every one of these dimensions.

One weakness of the AID Logical Framework is that it fails to separate the human, administrative, political, and diplomatic aspects of a project from the professional core. Since these may be crucial aspects of the BOPS, as well as all inputs, outputs, purposes, and goals, as well as the assumptions which relate thereto, this is a serious defect in the approach.

Another defect relates to the assumption of causal relationships between inputs, outputs, purposes, and goals. In the real world, most goals relate to not one, but many different purposes (as defined in AID literature); just as most purposes relate to not one, but many outputs; and most outputs are caused by not one input, but a whole series of inputs, programmed and unprogrammed, in an ecosystem which has constantly changing physical and biological aspects, as well as social, political, cultural, and economic aspects. To assume that one input leads to one output, and that the occurrence of that output can be credited to one input may be acceptable in some types of building construction and limited manufacturing operations, but it is not appropriate in human relationships, in the market place, in education, in technical change, or, most importantly, in international development assistance.

Thus if one were to take the logic of the AID Logical Framework itself, and subject it to its own matrix of analysis, it would be found that the assumptions are fallacious at all levels. The consequence of such an exercise might be the abandonment of the procedure in search of something more appropriate to the nature of international development assistance.

(this statement was prepared by a writer who is not usually

as opaque, but who feels that it might be more acceptable in light of human, administrative, political, and diplomatic constraints which obtain. Citations in support of the alternative to the AID Logical Framework which is proposed above are found in Annex 7.3, Item 3.)

Excerpt from
Desertification is More Than A New Word
by G.L. Metcalfe and G.L. Whitata for
Third World Experience of
Technoserve, Inc.

Desertification

Desert encroachment is a serious environmental problem affecting vast areas of the world, It is therefore, a serious human problem.

The United Nations Conference on desertification, which met in late August, 1977, in Nairobi, Kenya, defined desertification as a dynamic process usually created by people, which contributes to the diminution of and destruction of the biological potential of land. The scale and rate of desertification gives this new work and concept painfully human meaning, especially in Third World countries.

It is estimated that over 60% of the land in developing countries as a whole is permanent and seasonal pasture, desert and mountain terrain. An additional 29% is forest and only 11% arable farm land. Recent world-wide drought, as well as increasing demand for food, cash crops, building materials and fuel for the human family has jeopardized the fragile ecological balance in many poor countries.

While climate is a contributing factor, it is not, itself, the major cause of desertification trends in recent history. Drought is an example of the phenomena of desertification. It dramatically shows the results of sudden and protracted breakdowns in the production cycle of agricultural areas and the impact on social and economic lives of the people affected.

At present, the major causes of the spread of deserts are human in origin. They include population growth, and, ironically, improved disease prevention in favor of people as well as livestock. The combination of population growth, indiscriminate use of technology, efforts to increase economic growth and the material standard of living everywhere contributes greatly to the spread of deserts. This is exemplified by increases in livestock herds causing land overgrazing and deterioration of water resources. The search for or utilization of water (by building pans) and well drilling without integrated livestock, farming and range management policies diminishes greatly the value of the technologies employed and good intentions involved.

Excerpts from summary
Consultancy Report
Fred H. Mass 4/27/74

Recommendations for Range Management

1. As a common practice forage plants on a semi-arid range environment should not be used more than two consecutive growing seasons and only in emergencies a third consecutive growing season.
2. The stability for range development in North Eastern Province is dependent primarily on the stability and enhancement of the range ecosystem.
3. The stability of range ecosystems with increased grazing use is dependent on carrying out long term managed rest grazing schedules as a key ingredient in Range Management Plans tailored to the semi-arid range environment.
4. Maintaining long term stability of this range environment with optimum and stable livestock production consistent with other uses is a key responsibility of the range management function of the Kenya Ministry of Agriculture.
5. A high level of team interaction performance must be maintained in Nairobi, North Eastern, Rift, and Coastal Provinces to properly carry out the project.
6. A seminar level training program coordinated with all related levels of the Ministries education program should be implemented for personnel of rangeland related divisions by the PASA range management teams and the Division of Range Management.
7. Range environmental quality management of semi-arid lands with livestock grazing must be given top priority.
8. The most qualified range officers who have been specially trained and experienced by the Range Planner through the Division of Range Management for quality management of the range resources in a specific environment should be assigned the key responsibility to fulfill the Management Plan requirements.

9. One of the key qualifications for an effective block manager is the range officer's ability to adequately communicate in the language of the indigenous people who comprise the Range Committee.
10. More effective correlation of available services and effort. Especially in the far removed provinces would be much simplified if PASA members of the team were able to operate under the Division of Range Management alone rather than to have members fragmented to Water Development.
11. Developing and maintaining water facilities determined to be necessary by the PASA range planning team is a required service function to quality range management responsibility.

ANNEX 10

Excerpts from Trip Report
David R. Bishop, Range Officer
Gashi-West 11/7/79 USAID/K

Range Water Pan Inspection

Five large pans and three small pans were examined during this inspection trip to the Mado-Gashi West Grazing Block from July 31, 1979 through Friday, August 3, 1979. All three of the small pans are full of silt and are totally unable to assist in any management regime provided in this block. Of the four large pans (reservoirs) inspected, two have been damaged to the point that they are also virtually useless in providing a water source to contribute to animal use on a managed basis.

The two pans of the total of eight examined that still have some functional value to grazing management are unlikely to survive another rainy season. In both cases the silting basins above these structures are completely full of silt and are thus unable to function as protection for the pan.

It is unfortunate that no records have been kept by Range Water Branch or Range Management people concerning these pans. It is not known whether the silt traps functioned for only one rainy season or for several. This kind of information would have been useful in determining the effectiveness of the original design. Furthermore, there has been no maintenance of any of the original structures.

Because of a lack of management and maintenance of these pans, the pastoralists are misusing them, causing accelerated erosion of the walls of the dam. The watering places have deteriorated to where it is impossible to follow the grazing management plans.

The small pans intended for areas of wet season grazing are not functional at all. The large reservoirs and those boreholes which are operating thus become the sole source of water supply.

One of the principal objectives of the Range and Ranch Scheme in the NEP was to supply wet season water from small pans and from large pans and boreholes during the dry season. Current reviews of the areas developed in Phase I strongly indicates that this objective has not been achieved.

ANNEX 11

Excerpts from trip report - Clinton Armstrong
Engineer. July 31 - August 3, 1979

Range Water Pan Inspection

The first surface reservoir (pan) was built in the North Eastern Province (N.E.P.) in July, 1970. By July, 1977, forty-three large pans and sixty-two small pans had been completed, with several more built since then.

The design of the first lot of pans was based on steep side slopes for the central basis and strict livestock control to confine animal pressure on the pan itself to a narrow crush (drink area) on the downstream side.

Of the pans inspected on this trip many show heavy use by trekking livestock. Deep borepaths radiate outward from the structures for several kilometers. Sediment pools of many are full of silt and in several cases thick silt deposits are present on the downstream side of the pan indicating heavy erosion of the pan sides and cattle ramp.

Livestock control structures have been destroyed, culvert gabion inlet structures completely covered with sand and in several instances parts of the embankments washed away.

Pastoralists contacted at one reservoir said that the inlet structure there was covered with sand as a result of a single storm in 1978. Another pan whose inlet structure is covered with sand and consequently failed because of water overflowing and eroding the dam, has made this pan useless. Furthermore, three of the small pans inspected have completely failed.

Improper design must be considered for the failure of these structures because silting was not fully taken into account. The silt traps which were to be cleaned at least every three or four years have never been cleaned. Since no records have been kept of storm size and structure condition prior to the several destructive storms, improper design is impossible to establish.

The complete failure to protect pans and their water sheds from improper animal movement and overgrazing, along with the failure to provide any maintenance of pans and related structures, has led to the present poor condition of the pans.

ANNEX 12

Excerpts from End of Tour Report
N.E. McClymonds, PASA
U.S. Geological Survey
10/8/73 - 12/6/77

Introduction

"The Kenya Livestock Development Program for the North Eastern Province (NEP) was originally conceived and brought into existence in order to develop and improve rangelands and livestock quantity and quality in the province. Early planning of the project was based on a number of reports and consultations between the Government of Kenya (GOK), UNDP, World Bank, and the AID agencies of several countries." (page 2)

"The project began with Phase I, which was initiated to learn about the potentials for water development, both surface and ground water and to organize an agency in the GOK to train range managers and implement the range management plan and procedures. A small part of the NEP called the Pilot Area, which today is Mado Gashi East, and the western half of Kalalut Grazing Blocks, was the first to be studied and developed. Water development was accomplished by the construction of pans throughout the area and drilling boreholes along the Ewaso Ngiro-Lagh Dera drainage. The management of the range fell sadly behind, although the agency in the Ministry of Agriculture in GOK was set up and staffed both in Nairobi and in Mado Gashi, Habaswein, Garissa and Wajir.

"Phase II was a continuation of Phase I with an expanded area including 10 more grazing blocks which extended from Takaba to Garissa. The area from Habaswein northward is able to contain pans, but most boreholes encounter only saline water or have very low yields. To the south and west of Habaswein, pans are also feasible; boreholes have fresh water only along the Ewaso Ngiro-Lagh Dera drainage. (pages 2 & 3)

"In November, 1975, I learned that the policy had changed (I was told that there was no change, but someone neglected to inform me what the policy had been); that only production wells were to be drilled. (this would be quite an accomplishment for any hydrologist working almost anywhere). " (page 4, Para. 1)

Comments and Conclusions

The Project

"Phase II was staffed by expatriates from the U.S. Forest Service and the U.S. Geological Survey with administrative support from expatriates from Britain and Sweden in the Water Development Department (WDD) of the Ministry of Agriculture, and Kenyans in the Range Management Division of the Ministry of Agriculture. The U.S. staff included M.E. Mundorff (U.S.G.S., who stayed 2 years), R.C. Kornegay (U.S.F.S., who stayed 6 years), W.V. Swarzenski (U.S.G.S., who stayed 4 years), and the Range Management Advisors, successively F.H. Mass and B. Muldowney (U.S.F.S., who stayed only 2 years each).

"Phase II began with the expatriate staff including J.L. Frazier, Range Management Advisor and nominal Project Chief, U.S.F.S., who stayed 1½ years), R.C. Kornegay, Agricultural Engineer and myself (U.S.G.S. hydrologist, who will have stayed 4 years). Kornegay was replaced by L. Paul, and after a four month lapse, was replaced by J. Mower. Mower and Paul each stayed only 2 years. The history then, of the Range Management Advisor (the most important man on the project, the man who leads the teams and sets up the planning and should see to the implementation of the management of the range grass and water, has been one of coming and going, leaving a minimum effect and having a small influence on the project and the Kenyan range managers he is supposed to train." (page 5, last para.)

Counterpart

"Part of the PIO/T states that the G.O.K. will provide a counterpart hydrologist to train under my professional guidance. To me, this is the most important reason for my being in Kenya. I have spent ½ of the time in Kenya without a counterpart. Other expatriates never had one. If we are not here to train young hydrologists to effectively take over our jobs and are not here to advise on the hydrogeological problems, then an expatriate hydrogeologist is not needed at all. The job I have been doing could be done as well by a Kenyan hydrogeologist." (page 6)

Support

"a) At MOWD, it takes from 3 to 4 months to be reimbursed for expense money spent. (In one case it took me 18 months)

b) Vehicles repaired at the Government workshop are often unfit for field use.

c) Extra vehicles are seldom immediately available.

d) The new DCU workshop (in operation now for 2 years) in Wajir is often out of spare parts (tires, tubes, tube patches, fuel filters). On my last trip up they were out of vehicles.

e) We have a radio in Wajir, but cannot call MOWD in Nairobi direct."
(page 6)

Recommendations

"I suggest that my replacement have a good general background in hydrogeology and geology and that he have a specialized knowledge of geophysics, both the instruments and interpretation. Most of the work to be done in the NEP for the next 10 years will be generalized work of finding out what is there and where water may be found or not found? Complete detailed records of boreholes, both successful and failures, is probably the single most important contribution a hydrogeologist can make at this present state of knowledge of the water potential in the NEP.

In my opinion, the best way for a hydrogeologist to do his job, to get work done and contribute to the training and experience of his Kenyan counterparts, is to put him in a position of an advisor to the MOWD."

(page 6)

Counterparts

"If USAID/Kenya does not insist that G.O.K. provide counterparts to the hydrogeologist, Agricultural Engineer, and Range Management

Advisor, they might as well drop this statement of training from the PIO/T. Without some kind of coercion, as has been made clear over the past 4 years, G.O.K. is not inclined to provide counterparts for the expatriates. I personally, think this is a serious error in judgement and loss of opportunity on the part of G.O.K., but others seem less concerned. (page 7)

Maintenance of Tracks

"To save repair work on vehicles, to save petrol by using shorter routes, and to save time and energy wasted on flat tires, all of the tracks should be graded at least once a year. The tracks in the pilot area are nearly impassable." (page 9)

ANNEX 13

Excerpts From End Of Tour Report

by James L. Mower, Range Planner,
Kenya: July 16, 1975 - July 15, 1977

Introduction

Between the previous range planners assignment and the time of this assignment the Government of Kenya had changed planning priorities for the blocks in the North East Province and had also changed block boundaries from those referred to and used during Phase I of the project.

Existing Status

Planning Priorities were adjusted again after some blocks were combined and inventory of these blocks had progressed to the point where it was evident the Jira and Hadado blocks would be dropped because of low carrying capacity and lack of development opportunities. The posting of two planning teams, one at Garissa and one at Wajir, made it possible for the planning effort to move ahead of schedule so several new blocks were also added to the planning priority,

Problems and Recommendations

1. There are no usable aerial photos of the NEP area. This seems incomprehensible for a project of this size which has been in progress for so long and since they are so easily obtainable.

High standard planning or management cannot be initiated without them and will remain crude, inaccurate, and inefficient until they are obtained.

2. Separation of team members in two different ministries has been discussed in the past and could be a potential problem depending upon the personalities of individual team members themselves.

Admittedly, it would be best to have all team members under the same authority but this is not going to happen so we just as well work out the next best arrangement. This has not been a serious problem with the present team.

3. The problem of who is responsible for directing the construction crews has been discussed in past quarterly reports but confusion still exists, especially where it concerns the track unit. They still look for direction from range management when it should be given by the Resident Engineer. Closer contact by the Resident Engineers Office with the track unit would solve this problem.

4. Recently range personnel were posted to several undeveloped blocks in the NEP with their central station at Dadaab. Some of these blocks are two years away from full development and essentially the manpower posted to them will be wasted because they can do so little effective work before development begins. This is especially critical since they are using funds for wages and vehicle operation which could better be used to support essential operations such as the trend study team which is now newly organized but "grounded" because funds for petrol has been exhausted.

5. Range trend is an aspect of the North East Project which has been seriously neglected from the inception of the Project. The range management division in an effort to remedy this situation now formed a trend study team in cooperation with KREMU and ILCA. The information being collected may be more intensive than what is needed for range management purposes and dialogue should continue between the three organizations so an agreement is reached as to what information is needed for each of their respective purposes and what each will contribute toward the project in terms of manpower, maney and material.

6. (Monitoring of the ecological aspects of the project was provided for under the loan agreement yet no comprehensive evaluation was or has been made to date to determine whether project goals are being realized or what adjustments are necessary to improve the project.) This monitoring must be provided the priority it requires to isolate and correct problems found before continuing development. This in-depth analysis should include the grazing system and its results on the Pilot Project.

7. Many blocks in the North East have been developed for several years and pan and track are now in need of maintenance if they are to serve their intended purpose.

If existing construction equipment is used for maintenance the development progress will be seriously curtailed since maintenance is becoming a full time job. The need for a separate maintenance crew with equipment is needed if the Livestock Development Project is to remain operational.

Local hand labor has been suggested as a means to maintain pans and was tried at the Mansa Guda pan. The amount of hand labor to excavate one section of the pan was tremendous and was filled back in after one small storm. I personally feel that this method is not economically or physically feasible using Somali pastoralists.

8. The most far reaching and serious problem connected with the project is that of absence of livestock control. Until this problem is faced and solved, very little long range success can be expected and a gradual deterioration of the range will occur on all blocks where livestock water is developed.

This is a problem complicated by a nomadic population covering a vast tract of land in many cases not recognizing any allegiance to the country whose land they use. (To continue to develop without first recognizing control of livestock as a vital step in the development process will lead to destruction of the very range we're trying to improve.)

ANNEX 14

Excerpts from End of Tour Report
by Joe L. Frazier
PASA Range Planner US Forest Service
3/21/75

NORTH EASTERN PROVINCE RANGE MANAGEMENT - Project No. 615-11-
190-157

Range Management

To be successful, a grazing system in NEP must accomplish the following interwoven objectives.

1. Maintain or improve plant vigor and range health.
2. Provide for watershed protection.
3. Provide for sustained-livestock production.
4. The system must be flexible due to unpredictable rainfall and influxes of livestock.
5. Must provide forage reserves for use during drought period.
6. Maintain or enhance wildlife.
7. Conform as nearly as possible to pastoralist needs and traditions.
8. The system must be simple, easily understood and followed.

THE GRAZING SYSTEM

To meet these objectives the grazing system must include:

1. A deferment period for dry season.
2. A longer term rest period for recovery of plant vigor, maturity and reseeding.
3. Forage reserves for drought periods.

Approved Grazing

The approved grazing system treatments for each pasture block planned for use in NEP is:

1. Graze each of two consecutive growing seasons, as they occur, and dry seasons also if forage and water are available.
2. Defer or graze after seed is ripe and shattering the third season.
3. Rest the entire fourth growing and following dry season.

RAINFALL AND THE REST ROTATION SYSTEM

1. In drought periods the emphasis is placed on sustenance of livestock. When drought conditions moderate, the emphasis is on rebuilding the range to a state of high production and vigor in anticipation of the next drought.
2. When sufficient rainfall allows vegetative growth, but not enough to cause runoff and thus not enough for livestock, this, of course, qualifies as a rest period.
3. When there is no vegetative growth, because of a lack of rainfall there is nothing to graze. Consequently, this cannot be considered a resting period.
4. In areas with predictable amounts and frequency of rainfall and thusly forage and water are certainties, a rest rotation system using small blocks and a set number of pastures is possible.
5. Where rainfall is not predictable and rain fronts may be very narrow, as little as five miles, then much larger grazing blocks are necessary to ensure interception of some meaningful rainfall.
6. A variety of vegetation is required by the different classes of livestock, i.e., camels, sheep, goats and cattle.
7. Large grazing blocks assist in insect escape and with disease control.
8. Use of a set number of pastures and a rigid grazing schedule such as is possible in higher rainfall areas, is not possible in NEP or desirable due to unpredictability of vegetative growth, livestock water and livestock numbers.

The block masters are not doing their job in the NEP by allowing overgrazing of land scheduled for rest. The only management taking place is when a borehole breaks down and the area cannot be grazed because there is no water available for livestock.

During the preparation of the Phase II Loan package, several AID/Kenya people used the phrase "the social cost of doing nothing would exceed the economic cost of the project." If the development of water is continued without using proven range management practices high levels of livestock and people will deteriorate range conditions to the point of the 1972-73 drought.

PLANNING TEAM STATUS

1. Team Composition

Range Planner - Div. Range Mgt. M.O.A.
Agric. Engineer - Range Water Sect. M.W.D.
Hydrogeologist - Range Water Sect. M.W.D.

2. AID/Kenya - Project Manager Food and AGR

3. GOK Coordinator - M.O.A. & M.W.D. and with World Bank
and other donors

SUPERVISION OF US TECHNICIANS

Supervision of the US technicians is by the GOK supervisors in the Ministries. The Coordinator does not coordinate and has no authority. GOK Team Supervisors are too busy to be concerned and Expatriate supervisors are rendered ineffectual by GOK governmental disarray.

Team members have no authority. There are little if any meetings between US technicians and GOK reps to solve problems. Range Manager is not allowed to assist in implementing the grazing system.

Problems regarding transportation, repairs, office supplies, etc. for the team members go unresolved.

Team members rarely consulted about their work days and hours. Decisions on these matters delivered as ultimatums.

Team members are relegated to subordinate roles, yet were hired because of their expertise.

Decisions for management made by USAID/Kenya and GOK with no allowable input from Team members.

Communications regarding result of meetings between USAID/K and GOK not made available to members.

PASA employees not provided with language training before or during tour of duty in Kenya nor interpreter while in the country.

RETURNED PARTICIPANTS

Kenyans returning from Universities in US where they received BS or MS degrees in range management are often employed elsewhere than in the field. Many placed in supervisory positions without having had on the job training.

FACTORS AFFECTING TERMINATION OF TOUR

A letter from Head of Range Management to AID/K Director charged:

1. Plans and advice unusable by GOK
2. Planning was too slow - US Technicians would not work Sat. mornings
3. Unable to get along with former Prov. Range Manager now head of range planning in Nairobi.

PLANS AND ADVICE BASIS

Plans and advice were based on solid range management principles and were the continuation of five years of work previously done by MASS and MULDOWNNEY who helped set up the project.

Factors affecting disagreement with Prov. Range Management officer due to his advocacy and practicing a grazing system on the project tied only to water availability which did not consider the needs of the vegetation or environment. No support was given from AID/KENYA and the Range Management Division to ameliorate the problem.

SUMMARY

1. The potential of the project can still be realized if principles of range management are given the highest priority.
2. Have strong faith in young Kenyan range officers.
3. Pastoralists will concur with the reasonable amount of control necessary to achieve range management.
4. PASA employees have ability and desire to make range project work.
5. Feel a great respect for and fellowship with Somali pastoralists.

RECOMMENDATIONS

1. Use approved range management systems.
2. These systems must be recognized as necessary by USAID/KENYA and GOK.
3. Reorganize Range Ranch PASA technical experts under a US Team Leader and team concept of organization.
4. Totally commit USAID/K to rangeland development and management.
5. Place a range technical expert in each rangeland Province and in the Division of Rangeland Management in Nairobi.
6. Provide training and work experience to PASA employees.
7. Provide formal Somali language training to PASA employees.
8. Revise Egerton College and AHITI curriculums to give emphasis to plant physiology and grazing systems.
9. Provide inducements to secure more trained Somali and Boran range managers.
10. Lacking total commitment by USAID/K and GOK the project should be abandoned. -

ANNEX 15

Excerpts from End-of-Tour Report of Jack C. Gunther, Jr.,
Equipment and Management Specialist, 28 December 1974 - 24
February 1979, Kenya Livestock Development Project,
USAID Loan No. 615-T-008

Major Problems

The major problems the GK has faced have been in areas such as provision of adequate skilled technicians and administrative personnel since a national shortage of this category of person exists and in the area of logistic support where antiquated procurement, accounting, and supply procedures have hampered efficient logistics support. Some improvements in these areas have been made; however, there is still a long way to go.

The problems AID has faced in achieving the project goals have been mainly in the timely provision of staff, primarily mechanics, under the technical assistance portion of the loan. Almost four man years of time have been lost in this work category due to inability to attract or retain personnel in the remote project areas.

Planning

The traditional grazing areas of the various tribal groups of the NEP, were used as a basis for the preliminary layout of grazing blocks which roughly corresponded to these movement patterns.

Detailed planning was then done by the Ministry of Agriculture (MINAG) and Ministry of Water Development (MOWD) planning teams taking into account the rainfall patterns of the region which controlled the vegetation, and the geologic features of the area which control the type of development which could take place.

Results

The Phase I program was considered successful in that it resulted in intensive development of several grazing blocks which undoubtedly saved the nomads of the NEP, as well as many from Ethiopia and Somalia, from disastrous loss of animals during the drought years of 1973-1976.

The land in the Pilot Blocks was badly overgrazed during this period and the herds depleted from an estimated 600,000 cattle in 1972 to approximately 400,000 in 1977. However, enough of the livestock were saved to provide a nucleus for regeneration of the herds and after two years of good rains the forage has come back to a good condition.

DISCUSSION

There has been much discussion during the project over the environmental impact of putting water in the previously arid regions of the province without adequate control of range utilization.

Various Range Management Specialists, each with many years of experience in the field, have taken opposing stands on this matter.

PROBLEMS AND SOLUTIONS

We have been hampered throughout the life of the project by a high deadline rate of equipment and vehicles. This deadline rate had fluctuated from forty to fifty percent throughout the project life.

A major reason for this high rate (a normal rate in remote areas such as the NEP would be from twenty to thirty percent) is that a lot of Phase I equipment was expected to be used in Phase II and it was in bad shape even before Phase II started due to lack of maintenance funds between Phase I and II.

In addition, much of the equipment was the wrong type for the work to be done; e.g., using D-4's for bush clearing and pushing scrapers is not proper practice and 613 scrapers are not intended for heavy excavation; also, much of the equipment was approaching or exceeding its normal life expectancy.

Other reasons were lack of experienced operators of equipment and vehicles, lack of skilled mechanics and technicians, lack of spare parts from both local dealers and foreign sources, and finally, defective new equipment.

We have attempted to keep the old and badly maintained equipment running due to the expectation that it should be used; however, this is not a sound practice since it takes an inordinate amount of time and material to keep it running once it has exceeded its economic service life.

Operators of the construction equipment are becoming more skilled in its use and are thought to be less of a factor in the breakdown of equipment than they were in the early phase of the project.

Vehicle operators, however, are still not at an acceptable level of performance and their lack of understanding of basic maintenance practices, e.g., displacing and anti-corrosion solutions in radiators with highly mineralized water in batteries

thus causing radiator failure due to corrosion; or putting raw water in batteries thus causing failures; or push-starting a vehicle with an open circuit thus destroying the alternator; or over or under inflating tires thus causing tire failure area major causes for non-accident related vehicle damage.

Accident related damage is caused mainly by driving too fast for road conditions although there have been several incidents where drivetrain damage occurred due to getting stuck in the mud, speeding up the engine, and then snapping out the clutch thereby destroying the universal joints, the transmission, the transfer case, or a combination of the three; and some engines have been destroyed by driving in water over the air cleaner intake.

We have attempted to solve these problems by training, supervision, and disciplinary action but have had limited success.

Primarily, this lack of success is because there is little understanding on the part of the supervisors (many of whom do not drive themselves, or who have limited experience in driving) of the need for the training and for disciplinary action where speeding or other improper driving practices occur.

We have had a difficult time in attracting skilled mechanics and other technical staff to work in the NEP due to the fact that they can secure employment, usually at higher salaries, in the more developed areas of the country where they can be with their families and schooling and other amenities are available.

The GK and USAID are trying to overcome this lack by training technical staff at Kenya Polytechnic and the Industrial Training School. Eight men are currently enrolled at Kenya Polytechnic and eight more are being selected for craft training at the Industrial Training School and are expected to start soon. Unfortunately, this training takes three years so it will be some time before it has an impact on the project.

We have had a difficult time in securing mechanical superintendents to fill the foreign technical assistance positions authorized under the project.

These slots were all filled at one time; however, one man did not like to work in the remote area and resigned after eighteen months for personal reasons; one man became ill and his contract was not extended; and the third man died while on home leave. Therefore, we have not had any of these positions filled since October 1977 until a new man arrived the latter part of December 1978. He should be a big help in getting things moving again.

A problem in recruiting and retaining staff in the NEP is the remoteness of the area and the lack of amenities.

The GK is trying to alleviate this problem by constructing staff housing equal to or better than personnel would have in the developed areas of the country. This has helped to some extent; however, construction is slow due to the remoteness of the area, lack of readily available construction supplies, and lack of skilled workers to do the construction.

Logistic support has been a problem both in foreign procurement and locally.

Construction equipment ordered through the Afro-American Purchasing Center (AAPC) in April 1975 wasn't put on a purchase order until September 1975, even though it was proprietary procurement, and wasn't shipped until May 1976 arriving in June-July 1976.

Spare parts ordered with the equipment took another two years to come. To top it off, once the equipment arrived, it all broke down due to manufacturing defects and was out of order from three to nine months awaiting repairs under warranty.

In the case of vehicles, the record was even worse. Vehicles ordered in April 1975 were still not all shipped until December 1976 and spare parts ordered at the same time have still not all arrived, January 1979. This performance is incredibly bad.

Local procurement of spare parts was very difficult also since when the project first started, practically everything needed to go to the Ministerial Tender Board (MTB) or the Central Tender Board (CTB) for approval before purchase. By the time the necessary approvals had been secured, the prices had changed and the process had to be repeated. This effectively precluded getting any spare parts.

Fortunately, this procedure was changed for many items in late 1976 when spare parts contracts were let with the major suppliers, and now we are able to get parts quite rapidly for most items, provided we pay the bills on time.

There has not been a problem of lack of funds since the first year of the project, however, we are still restricted periodically from getting supplies because we are so slow in paying our bills. Hopefully this process will be speeded up now we have our own Accounting Section (prior to last year we had to go through the Ministry of Agriculture Accounting Section).

The last major constraint in the supply area has had to do with the slowness of getting construction items through the Ministry of Works (MCW). This from my personal experience is as much due to actual subversion of the process by clerks unwilling to do their job or causing unnecessary delay as by the lack of management ability in forecasting needs. I do not know the solution to this problem except to suggest that where MCW cannot give timely supply action, permission should be immediately granted to procure items from alternative sources. This will require a change in supply procedures authorized by the Treasury.

Lack of transport has also been a major factor in the slow progress of the project. Only the exact number of vehicles were bought which the project designers felt were required and they had little appreciation of these requirements for a project some 500-800 kilometers over bad, unpaved roads from the source of supplies. Furthermore, there was no consideration given to the down time of vehicles (from twenty to thirty percent under most favorable conditions) due to bad roads and problems mentioned previously.

We had a problem when the Phase II Program first began with the equipment operators not wanting to work since they were getting paid whether they worked or not. When they were directed to work, they countered this by damaging their equipment by improper operation and then they didn't have to work because the equipment was broken down. Deliberate damage couldn't be proven for dismissal purposes so other measures were taken.

ANNEX 16

End Of Tour Report
National Range and Ranch Development Project
December 5, 1974 - December 10, 1976
by Dayton D. Nelson

Assignment

This report covers the period from December 5, 1974 when I arrived in Kenya to December 10, 1976, the end of my tour and assignment. I was recruited to be on assignment to the U.S. Agency for International Development to work in Kenya on a National Range and Ranch Development Project in cooperation with the Kenya Government. My task was to provide advice and expertise in the planning and development of ranch water supplies. This work was done through participation with a USAID range planner and our respective counterparts within the Ministry of Water Development and Ministry of Agriculture. My efforts as a member of a planning team have been a part of a larger, overall program known as the Livestock Development Program Phase II. In addition to our planning and development team, there were two other similar teams involving U.S. Government personnel, each with an established geographical area. (Page 1, Para 1)

Livestock Development Program Phase II

I believe that it is important to understand that our efforts are only a portion of a much larger program which has as its objective the development and improvement of the ranching and livestock industry in Kenya. This is a very significant effort involving several agencies and ministries in the Kenya Government several other governments, the World Bank and, of course, the individuals, groups and companies involved and having interest in the rangeland and ranches themselves. (page 1, Para.2)

For about the first year after my arrival in Kenya I worked on water development planning for a group of seven established Group Ranches near Magadi in the southern end of the Rift Valley Province. This area, inhabited by the Masai people was allotted to groups of the people with the intent that they would develop, live, and raise livestock on the established area of their ranch thereby stopping the nomadic life which up to now they have been forced to lead.

Since January of 1976 I have been assigned to ranch water development planning in the Coast Province and located in Mombasa. The work has been on group, company, and cooperative ranches in all of the districts. Much of my time during the second year has actually be spent on implementation of plans. (page 2, Para. 1 & 2)

LIVESTOCK DEVELOPMENT PROGRAM - PHASE II

NATIONAL RANGE AND RANCH DEVELOPMENT PROJECT

While it can be argued that the conception of the overall program could have been better, to say that the management of the NRRD Project is poor is being generous.

The total project is vast, affecting perhaps three-fourths of the land area of Kenya, with about 362 mm being spent; involving 12 separate departments and 6 different Ministries in implementing the various components. It also affects millions of people and many vital resources. The project is theoretically coordinated by a Project Coordinator. By definition, however, and in actual fact, the coordinator is just that with no authority or responsibility for direction of the effort. Consequently, there is no overall line authority and no comprehensive direction. In fact, there is little evidence of any coordination. That an attempt at operating such a complex program, with such significant resultant effects, is being made without overall line direction and management is in my opinion a major error. The result, as related to ranch planning or more specifically to ranch water planning is that although the project is not new, having started in 1968 (with a considerable amount of work done prior to that time, there is:

- No formal direction on what areas will be planned in what order or what criteria should be used to decide upon planning priorities.
- No formal procedures or processes for developing a ranch plan which are agreed to by all parties.
- No commonly accepted criteria has been established for evaluation of ranches, either in planning or the implementation of the plan.
- No commonly accepted criteria for the approval of ranch loan financing; ranches have received loans without any plans or with old out-dated plans.
- No target dates are established for completion of the various phases, be they allotment, planning, or implementation.
- No follow-up to insure that plans, where they exist, are followed.

Ranch Water Planning

This program as conceived is Range and Ranch Development Project. Consequently, it has been my impression that it is considered a Range Management Project by the Ministry of Water Development with the Water Department serving as a technical advisor.

The fact is, by whatever it is called, it is a land allotment and resource development project of very significant proportions. While the areas involved are classifiable as range it is also true that it could have a great affect on soil, water, vegetation and wildlife. Its impact on the social-economic development of the people and the overall economy of Kenya will be major.

The water development, use, and conservation for power generation, irrigation, livestock water or potable water for the people is a paramount need and demand is obvious from living and travelling in Kenya. The Government, recognizing this need established the Ministry of Water Development. I am sure it is recognized that the availability of water as the need for it, both in quantity and quality are influenced by the extent, type and pattern of land use and development. Proper land use development, i.e. ranch development, is nearly impossible without the full and active participation of the Water Department.

More specific problems encountered that reflect present attitudes and position of the Water Department and which must be corrected if they are to redeem a greater responsibility or even satisfactorily proceed with the present tasks are:

(1) A Lack of interest and direction:

In the two years I have been working with the Water Department, no representative of the Department has ever visited the work areas with me or the planning team to evaluate conditions which actually exist on the ground. There have been no meetings to discuss programs or objectives and no reliable long range work program has been developed. No advice or consultation from myself or planning team members has been requested on how the job could or should be accomplished. It is unfortunate that we have had very little opportunity (or requests) to contribute first-hand knowledge of the land areas and job requirements at a decision-making level even though it is apparent the head of ranch water section is not more than vaguely familiar with the land areas I have worked on or the real requirements of the work to be done.

There has been no apparent concern for expediting the project or training Kenyans to take over the responsibility. I have had only one assigned counterpart (for about six months) in my two years assignment; and this counterpart was a young engineer in a training status. While other young engineers and technicians have been available part time to the team it has been mostly in an "as available" status. The agreement was that GOK would provide a counterpart engineer. Having a trainee who would be in the position for only six months is almost an exercise in futility when so much administrative time is lost and some accomplishment is desired.

(2) A great shortage of middle management and administrative capability is evidenced by slow processing of supplies orders, slow processing of claims, late salary payments to employees, almost no vehicle repair service at Eastleigh work-shop, and no satisfactory alternative system, among other symptoms. Some materials ordered almost two years ago have not been received to date; claims filed by employees are taking as much as six months to process and employees many times do not receive their salaries until several days after they are due. This has even extended to several weeks in some cases. In most cases, when I have followed up personally, I found that work had not been delegated and if it had been, there was no process for follow up to insure the work had been done. No corrective or disciplinary action has been taken when it is found that the work had not been done. I also observe a large amount of bureaucratic paper work which no one can provide a good reason. I have observed few examples of efforts to streamline any action or process.

(3) Lack of description of the job, understanding of what is expected by employees and what their responsibilities and opportunities are. Again, perhaps reflecting on the capabilities of middle management, there is no clear understanding by the engineers or technicians I have met of what their job assignment is. To my knowledge there are no written job descriptions and no degree of performance evaluation. I have not been aware of any type of systematic approach to defining employees responsibilities and making them accountable for performing that job through evaluation. I have encountered several young engineers who are unhappy with their role and who fail to have any clear job oriented objectives. Many of these young employees state that they want more responsibility and would desire to do more engineering. Unfortunately, it appears that the MCWD prefers to do most of its engineering work by use of its consultants. This may be necessary because of a lack of in house qualified personnel. On the other hand, however,

it reduces the challenges and opportunities to learn and gain experience for the young engineers within the Ministry. The question becomes, who in the ministry is qualified to evaluate engineering work.

My personal belief is that we could contribute most by working in a capacity which would be more helpful in strengthening the management aspects. That would mean we would be assigned a full counterpart engineer and perhaps several young inexperienced engineers and technicians. By simply providing timely suggestions, advice and assistance and insisting that Kenyans do the work that needs to be done a greater long term contribution could have been made. It seems that proper management of the use of the technical knowledge available is a much more serious problem. If technical shortages do exist then proper management, of those available, is even more important. Also, if real technical experience is lacking then USAID could help best by providing suitably qualified and experienced personnel. This in my opinion would be young engineers and perhaps technicians with the basic experience, probably 5-10 years. The work I have experienced which needs to be done is not highly technical or complicated. Mostly, it requires some leadership, initiative and desire to get something done. It is true that basic data and information is not often available and some situations may require a high degree of judgement. These cases are greatly outnumbered by standard and work. One or two experienced engineers overseeing the work could provide the balance and judgement needed in this program.

U.S. Agency for International Development

I was recruited as a technical advisor to provide expertise, training and consultation to the GOK in ranch water development plans. In fact, it is not clear that AID desires this type of help. This appears to be the case because AID even though it has ostensibly asked for this expertise and has recruited people with broad experience (15 to 25 years or more in the field of expertise) it has delegated them to work for the GOK as operating technicians rather than advisors or consultants. This has been done with little recognition of the conflict and contradictions with employees rights under the U.S. Civil Service Regulations. The delegation, in effect has placed the PASA people in the unrealistic and difficult position of being responsible to two or three supervisors. USAID Project Leader, GOK Supervisor and our Parent Agency. Frankly, there has been little discernible interest or desire from AID to receive the opinions, judgement or advice or for that matter resolve any program problems with the planners. If the directio

of the Mission continues as it has been and planners are assigned to work for GOK, then the function of AID appears superfluous. If on the other hand, AID has a vital interest and desire that the work progress systematically then it has failed to maintain such a stance. To my knowledge it has not insisted that adequate support as agreed has been provided. AID has not insisted on specific agreed-to formats, processes or procedures being instituted to produce acceptable plans. It has given the direction of the planners to GOK; and then apparently been concerned when plans are not suitable. AID has not directed, and supported the technical advice it has hired, and for that matter has not requested or held any kind of working, meeting or problem solving sessions in my two year experience, except for one orientation meeting. To my knowledge, AID has not insisted on any strong direction toward proper management of ranches once developed. AID has not insisted or tried, to my knowledge, to institute recommendations or suggestions made by its own studies or reviews of the work planners are doing.

Closing Remarks

I have been quite frank in discussing the problems associated with the project and work assignment. This is done because I believe that satisfactory development depends on solving these problems. It is hoped that no one is offended by the frankness as no offense is intended. I am very appreciative of the friendliness, congeniality and hospitality of the Kenyans I have had the opportunity to meet and work with. They have made our short stay in Kenya most enjoyable. I sincerely hope that some of the difficulties will be overcome and in some small way I have contributed toward the development and the experience of these people.

ANNEX 17

End of Tour Report

Robert C. Kornegay
Agricultural Engineer
Kenya
April 9, 1969 - June 28, 1975

"Introduction

A. General

The North Eastern Province of Kenya extends from the Tana River on the south to the Ethiopian border on the north and from the Somalia border on the east to the Eastern Province on the West. It is comprised of the Garissa, Wajir, and Mandera Districts - an area of about 49,000 square miles. Most of this area, except for a few hills and small mountain ranges in the Mandera District and in the northern part of the Wajir District is flat. Its vegetation is bush-grassland. The people are nomadic and semi-nomadic Somali pastoralists.

B. Phases of Range Planning And Development

The project to date has been carried out under the following two phases:

1. Phase I, known as the Range (Water) Development Project, was started in December, 1968, and completed in September, 1974.
2. Phase II, known as the Kenya Livestock Development Program, has been in operation since September, 1974.

The Phase I project included the Garissa and Wajir Districts and a proposal for development of Grazing Block 15 in the Mandera District. The Phase II project includes all three districts."
(Page 1 Introduction)

C. Background: Phase I

"The initial field work on Phase I began in 1969. From this work a pilot range management area (a test area to demonstrate if the schemes will work and are feasible) was selected for intense planning and development. This area is described as the Mado Gashi-Kalalut Grazing Unit, referred to as the Pilot Project. It comprises about 1.8 million acres and is located in the Garissa and Wajir Districts." (Page 2 Para. 1)

The studies and experiences gained during Phase I indicate that sufficient surface water resources are available in most of the North Eastern Province for feasible establishment of water supplies for range management schemes. There are maps which show the general areas which have the best and the least potentials, based on present knowledge for surface water developments primarily for constructing large reservoirs for maximum range utilization. The least potential areas are those that generally have shallow soils, so structured that they have high infiltration rates. These conditions, however, do not rule out these areas for range development because ground water supplies may be of sufficient quantity to substitute for the large pan sites." (Page 3 Para. 1)

"Water Storage

It is difficult to predict the weather conditions for the North Eastern Province. Rainfall does not seem to cover the area during any rainy season. Even during the heaviest rainy season, some areas suffer from drought.

The average annual rainfall is about 10 inches per year or about 5 inches per rainy season. (Two rainy seasons per year.) This average seems to occur in about 50 percent of the rainy seasons. Less than average rainfall occurs in about 30 percent of the rainy seasons; above average in about 20 percent.

Often enough, rain will fall to green-up the vegetation, but not enough will fall to produce runoff for water storage in the pans. This can be beneficial because the lack of water limits livestock use - thus providing a type of rest and built-in-protection for the grasses.

It is estimated that during an average rainfall season, about 70 percent of the pans will impound water to varying degrees. This storage is equivalent to about 50 percent of the available pan storage capacity (280 million gallons) or about 190 million gallons. Below average rainfall will store about 10 percent or less of the total storage capacity or about 30 million gallons. Above average rainfall can store as much as 80 percent of the total storage capacity or about 220 million gallons.

Theoretically, about one-half of the stored water is available for cattle. The other half is lost to evaporation and seepage and/or other uses.

For an average rainy season, the pans in the developed grazing blocks will provide enough water to carry about 40,000 cattle.

Boreholes and other water supplies will increase cattle numbers by at least another 10,000 head. Obviously, if more cattle are desired, then additional water facilities will have to be developed.

During drought years, alternative water supplies such as the Tana River, Galana Gof, wells, Etc., will be used until normal rains return. Above average rainy season will supply sufficient water in the pans to carry about 500,000 cattle. There will be a surplus of water and possibly even grass at these times.

To date, about 20 percent of the NEP has been developed. These areas (Blocks 1,2,3,4, and 5) are at times overstocked; and this overstocking has overtaken many of the pans, inflicting varying degrees of damage and causing overgrazing around some of the larger pans." (Page 6 & 7)

"Transportation and Construction Equipment Problems

It is obvious that accomplishments have not kept pace with goals. There are many reasons for this situation, but three of the most troublesome ones are lack of money (this has always been a stumbling block but especially more so during the transition period between Phase I and Phase II), breakdown of vehicles and construction equipment plus the long delays in purchasing spare parts and making repairs, and lack of transportation and communication facilities." (Page 7 Para. 4)

The lack of transportation has been a problem from the beginning of the project in 1969. The Central Eastleigh Workshop has not been able to cope with the repair and maintenance burden. The workshop is not properly staffed and equipped to handle the workload (Water Development and equipment from all over Kenya) thrust upon it. These conditions, along with lack of money and spare parts availability, often ties up machines awaiting repairs for several weeks or longer.

2. Recommendation

Now that the Phase II loan and matching funds are becoming available, spare parts and transportation procurement are more readily available. However, GOK's policy, the requirement that most purchases which exceeds K.Shs. 1,000/- (one thousand K. Shillings) must have approval by the Central Tender Board before the purchases can be made causes considerable delay (DC4's D-7 has been broken down for nearly a year awaiting repairs) especially in repairing heavy machinery where the repairs almost always exceed K.Shs. 1,000/-." (Page 8 Para 1&2)

"Project Implementation Problems

For the first four years, the PASA team members were housed in the Water Department. They were supported in field planning by a WD track construction and drilling team. For the past two years, the team members have been separated with the Range Planner located in the Range Management Division. This organization may be desirable within GCK's framework, but it causes communication problems for the team members. To compound this problem, the team has been excluded from problem solving and coordination meetings whenever project issues are discussed.

This is frustrating; generally the team members are more knowledgeable of the project problems than those who are invited to attend these meetings. Until recently, the minutes of these meetings were not even supplied to the team members so that they were not kept informed of the decision taken. For example, it was recently brought to the team members attention that the Range Management Division is proposing to reduce the size of the grazing blocks and, consequently, changing some boundaries. This action deviates from the original Phase I size grazing blocks' proposals. Experience may indicate that these changes are needed; but why wasn't at least one meeting held, including the team, to discuss these needs.... Agreements could have been reached at this time - before so much time and effort have already been spent in planning, track construction, pan size, site selection." (Page 8 & 9)

"Recommendations

It is essential that the team not be fragmented. Group meetings-including appropriate Divisions, USAID Mission, PASA team, and others must be held regularly to discuss range planning progress, implementation policy, responsibilities, and other problems concerning the project. If the goals established by the Phase II program are to be met, there must be freedom to exchange ideas and mutual trust among those involved with the project." (Page 9 Recommendation)

"Maintenance Problems

Pan construction started in October, 1970. So far, no maintenance has been done on any of them. It is estimated that about 75 pans (large, medium and small) will need maintenance by the end of 1977. Most of the maintenance consists of removing silt from the sediment and/or main pools and constructing wire and thorn bush fences for protection. The large deep pans will be difficult

"clean" with heavy machinery. The sediment is generally too soft to support the machines.

Most of the tracks constructed during the planning periods were regraded during the pan construction periods. However, erosion, soil cracking, elephant and other animal tracks soon render them unfit for vehicle travel, adding to the difficulty of managing the Blocks." (Pages 9 & 10)

"The Use of Windmills (instead of small petrol or diesel engines) for less operating and maintenance expense should be considered if wind velocity is found to be adequate to operate the pumps when needed." (Page 11 Para. 2)

"Custodians

Custodians will be required to operate the pumps and serve as overseers of the pans to insure that they are not abused, therefore, reducing frequency of maintenance. Custodians are also needed on the other large steep-sided pans that are not presently scheduled for equipping with pumps etc., whenever they are in use." (Page 11 Para. 3)

"Aerial Photos

Aerial photos are needed for adequate planning, implementation, and management of the grazing blocks. The photos should be taken prior to planning. The recommended photo scale is 1" = 1320'." (Page 11 Para. 4)

"Program Continuation

If the proposals, as outlined in the Phase II - Livestock Development Program for water development in the NEP are implemented - and all indications are that they will be - then this part of the program will be successful and should be continued.

However, it should be pointed out that if range management is not implemented along with water resources development, untold harm can be done to the environment and, consequently, to the Somali people." (Page 12)

Acknowledgements

The goals and objectives obtained in the North Eastern Province Range Management Project are the direct result of the cooperative efforts of people from the Ministry of Water Development, Ministry of Agriculture, USAID/Kenya, USAID/Wash., U.S. Forest Service, U.S. Geological Survey, World Bank and donor countries. I shall not attempt to list all the names of those involved; they are too many. However, I personally

would like to give special recognition to my PASA Teammates, Maurice Mundorf, Wolfgang Swarzenki, Fred Mass, Billy Muldowney, Joe Frazier, and Neil McClymands and to the dedicated men of the Track Construction and Dam Construction Units with whom I have worked closely over the past six years. Each of them as left his own special imprint on the semi-desert lands of the North Eastern Province of Kenya." (Page12)

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