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Project Performance Audit Report

TANZANIA BEEF RANCHING DEVELOPMENT PROJECT

PHASE I

(Credit 132-TA)

January 28, 1976

Operations Evaluation Department

PREFACE

This report presents an audit of accomplishments under IDA Credit 132-TA for US$1.3 million, which was signed in October 1968 and closed, fully disbursed, in January 1974. The audit was based on information contained in the Project Completion Report (PCR) as prepared by the borrower and by Bank staff in Nairobi, on information contained in Bank files, on discussions with Bank personnel in Washington and Nairobi and on visits to the headquarters of the National Agricultural Company (NACO, succeeded by NARCO, the National Ranching Company, in early 1975), all five project ranches, and the training institute.

The cooperation of NACO staff at all locations is gratefully acknowledged.

Detailed comments on a draft of this report were received from the Ministry of Agriculture and are cited at several points in the text.

PROJECT DATA

Credit 132-TA

Amount of Credit	US$1.3 million
Amount Disbursed	US$1.3 million
Date of Credit Agreement	October 31, 1968
Date of Effectiveness	January 15, 1969
Original Closing Date	December 30, 1972
Final Closing Date	January 30, 1974
First Bank Mission	1965
PCR Issue Date	December 17, 1974

Repeater Project

Number	Credit 382-TA
Amount of Credit	US$18.5 million
Date of Credit Agreement	May 23, 1973

Exchange Rates (Tanzanian Shilling)

US$1 = T Sh 7 used throughout (actually Sh 7.143, except for a short period in 1973/74 when the rate was changed to 7.000 and 6.900)

T Sh = 1 Kenyan shilling

AU = Animal Unit: All head of cattle except calves are counted as an Animal Unit.

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Abbreviations Used

ADS:	Agricultural Development Services
ARI:	Appraisal Report for the BRDP I
ARII:	Appraisal Report for the BRDP II
BRDP I:	Beef Ranching Development Project Phase I
BRDP II:	Beef Ranching Development Project Phase II
cdw:	Cold dressed weight
DDC:	District Development Corporation
LIDA:	Livestock Development Authority
NACO:	National Agricultural Company. At the beginning of 1975 renamed NARCO
NAFCO:	National Agriculture and Food Corporation
NARCO:	National Ranching Company
NDC:	National Development Corporation
TLMC:	Tanzania Livestock Marketing Company
TPL:	Tanganyika Meat Packers, Ltd.
TRDB:	Tanzania Rural Development Bank

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SUMMARY

1. In 1968 the Bank agreed to give financial support to livestock development in Tanzania. Phase I of the Beef Ranching Development Project (BRDP), as part of a long-term livestock improvement program, called for the development of three existing and of two new cattle ranches, each measuring some 80,000 acres and carrying on average 12,000 animal units. They were to be run by the National Agricultural Company (NACO), a parastatal body to be created for the project as a subsidiary of the National Development Corporation (NDC). In addition there would be a component of technical services and training. IDA Credit 132-TA of US$1.3 million was to cover 65% of the total project costs of US$2 million (T Sh 14 million). The Credit was signed in October 1968 and became effective in January 1969. It was closed, fully disbursed, in January 1974.

2. The funds of the IDA Credit for the ranches would be on-lent by the government to NDC, which in turn would on-lend to NACO. The 35% contribution by the Government of Tanzania would be provided by NDC through NACO in the form of equity.

3. A critical analysis of the conception and plan of the project presented in the Appraisal Report leads to three major conclusions:

- The development of parastatal beef ranching was a sound concept for Tanzania.

- The proposed investments were rightly kept to a minimum. Institutional and organizational aspects were adequately dealt with. Competent expatriate staffing was programed as far as possible under Tanzania conditions.

- The projected impact in terms of beef production and supply of improved heifers was based on reasonable technical coefficients and prices. The expectation of an economic rate of return of 18% and of the generation of sizeable funds for the government was realistic.

4. Disbursement of the loan and implementation of the project in terms of developing the ranches, providing the technical services, and training for ranch management suffered from initial delays but was by and large satisfactory. Significant deviations from the predictions were encountered at the following points:

- The construction of the training center, essential to the program though not included in the credit, was delayed. It was only in 1973 that the first batch of

12 students graduated from an 18-month course, while it had been envisaged to have trained 30 in several batches by 1970.

- Ranch management became a problem, since on one side there was a lack of qualified Tanzanians, and on the other it proved difficult to keep expatriates in responsible positions.

- The accounting system was unsatisfactory, having a number of unusual facets and lending itself to misinterpretation. In spite of being formally consistent and correct it was not and could not be used for ranch management purposes.

- During the project period NACO expanded, taking on more ranches, in spite of its limited administrative and professional capacity.

5. At year end 1973 the herds had been built up to over 90% of the projected target. But weaning and culling rates have been much lower than forecast - showing no significant long-term improvement - and slaughter weights have apparently been low as well. Production and sales had not reached 40% of the targets.

6. As opposed to the appraisal forecast of positive cash flows every year the ranches never made an operating profit and the operating losses increased over the years. NACO's total losses (on all the 16 ranches it ran in 1973) accumulated to T Sh 15 million. During the whole period NACO had a negative cash flow and, contrary to expectations, was forced to rely on a bank overdraft which increased to T Sh 12 million in 1973. NACO's capital structure deteriorated and reached a ratio of medium-term debt to equity of 1:0.9 in 1973 instead of the predicted ratio of 1:5. Repayment obligations in June and December 1974 could not be met.

7. Project performance is below appraisal expectation and very much below what could have been achieved. Even if appraisal beef price projections are increased by 2/3 to account for a higher economic value than assumed at that time, the internal economic rate of return based on actual performance would be only 2% rather than the 18% originally estimated. This reduction is the result mainly of lower production levels resulting from poorer management conditions than anticipated. Taking into account the substantial increases in beef prices which occurred during the project period, an economic rate of return of 13% can now be calculated through 1983. Had appraisal production levels been achieved, a much higher return would have been obtained. However, a prerequisite for realizing even the modestly successful 13% return is that NACO's financial difficulties do not impair future development of the ranches, and that the management of the whole operation improves substantially.

8. A more detailed performance analysis shows that the five ranches under the BRDP were well planned and developed and that on-ranch costs were not excessive. But the analysis also shows that management on the ranches was not making good use of the resources and installations and that the overhead organization (NACO) was excessively voluminous and expensive. Inadequate overhead organization and poor on-ranch management had led to a situation that was characterized by the fact that annual overhead expenses alone were regularly higher than the gross revenue from cattle sales.

9. In mid-1973, although the difficulties of phase I had started to become apparent, the Bank signed a credit of US$18.5 million for the Beef Ranching Development Project Phase II. This credit is many times larger than the first credit. An economic return of 35% was estimated for phase II. The appraisal team of phase II, which was in the field in February 1972, was conscious of the growing difficulties of phase I. But the team was impressed by the successful course of ranch development and assumed that recovery of financial and operational viability would be partly ensured by the infusion of new funds and the improvements in management inputs provided under phase II. In retrospect, it appears the magnitude of the management problem was not adequately recognized in the phase II agreement. The problem persisted and there is little reason to believe that phase II will not encounter the same difficulties as its predecessor unless remedial measures recently proposed have their intended effect.

10. Not only in terms of commercial criteria but also in terms of what beef ranching can be expected to contribute to the general development of a country, the performance of phase I of the beef ranching development project in Tanzania has been unsatisfactory. But the five ranches have been developed, and with improvements in management at headquarters and ranch levels - improvements that are not beyond the government's capacity - the situation can be almost completely reversed and the recovery of phase II begun.

Project Performance Audit Report

TANZANIA BEEF RANCHING DEVELOPMENT PROJECT

PHASE I

(Credit 132-TA)

I. INTRODUCTION

1.1 Tanzania became independent in 1961. It is one of the larger countries in Africa with a land area of 884,000 sq km (about one-tenth of the area of the United States without Alaska). In 1973 its population was estimated at 14 million, increasing at an annual rate of about 2.7%. The average population density of 16/km^2 is lower than that of any of its East African neighbors. Between 1968 and 1973 the GDP grew at a rate of 1.9% per year. The per capita GNP at factor cost in 1973 was about US$110. Agriculture provides 90% of the employment but only about 40% of GDP (livestock production 8%), with subsistence production accounting for over half the value of the sector's total output.

1.2 Only about 9% of the total land area of mainland Tanzania is used for crop cultivation, another 10% is fallow (and/or temporary pasture). The remainder is range land or indigenous bush, most of which receives less than 750 mm of rain per annum. With some 13 million cattle[1/] and 7 million sheep and goats grazing on 400,000 sq km, livestock represents a major national resource to Tanzania. Most of the cattle population are in the traditional sector with a very low productivity. Recorded offtakes for slaughter are around 2.5% and the liveweight of slaughter stock only averages about 250 lbs. The distribution of the national cattle herd is largely determined by the presence of tsetse flies, which still deny vast areas to grazing. In terms of productivity as well as expansion the long-term livestock potential of Tanzania appears enormous.

1/ Estimates range from 9.4 to 14.5 million for 1973.

II. CONCEPTION OF THE PROJECT AND THE APPRAISAL REPORT

A. Background of the Project

2.1 Contacts between Tanzania and the Bank concerning livestock development go back to 1965 when Tanzania first asked for assistance in the preparation of a loan application. At that time, the National Development Corporation (NDC), a parastatal agency, operated six ranches with a stock of 44,000 head. Some of these ranches had been inherited from the Tanganyika Agricultural Corporation, others had been acquired after the government had revoked the title deeds and the long-term leases of ranches operated by Europeans. NDC wanted assistance in further development of the six ranches and in the establishment of 12 new ones over a 10-year period. At the same time NDC envisaged massive investments to build up a dairy industry.

2.2 Over a period of three years, five preparatory Bank missions visited Tanzania. The Cooperative Program (FAO/IBRD) in Rome and ADS in Nairobi were involved and elaborate pre-investment plans were produced. The preparation of the project took so long, not only because livestock development in East Africa was a new field for the Bank, but also because there existed two basic points of disagreement between Tanzania and the Bank:

- Tanzania envisaged a much more massive investment program than the Bank;
- Tanzania's ideas with respect to the administrative organization and the provision of managerial talent were, in the eyes of the Bank, not suited to guarantee success of a ranching project.

It was not before the end of 1967 that the Bank felt that a mission could be sent out to formally appraise a beef ranching development project. The appraisal mission took place in November/December 1967, and its report was finalized in October 1968.

B. Conception of the Project

2.3 The appraisal report for the first phase (ARI) envisaged a project consisting of two main parts, namely, ranch development and technical and training services. The ranching component consisted of the development of five ranches, three of which were already in existence (West Kilimanjaro, Mkata and Kitengule); the other two were planned but had still to be located and were to be established from scratch (eventually Mzeri and Missenyi). Four of the ranches were entirely devoted to cattle; one included sheep as well (W. Kilimanjaro):

Table 1: Ranch Characteristics at Appraisal

	Area in Acres	Projected Carrying Capacity in Animal Units
Kitengule	100,000	16,600
Mkata	80,000	12,000
W. Kilimanjaro	82,000	7,300/a
Model 1	80,000 (89,000)/b	12,000 (14,900)/b
Model 2	80,000 (81,200)/c	12,000 (10,150)/c
Total	422,000 (432,200)	59,900 (60,950)

/a Of which there would be some 900 AU (5,400 head) of sheep.
/b Actual figures Missenyi shown in parentheses.
/c Actual figures Mzeri shown in parentheses.

Forty-six percent of total finance would be provided for the purchase of breeding cattle, and 42% for physical ranch developments, such as on-ranch roads, firebreaks, fencing, water supplies, stock handling and animal health control facilities and ranch buildings, and an initial procurement of feeder steers for fattening.

2.4 The remaining 12% of the funds would be used for technical services and training, in particular for the preparation of ranch development plans and their execution, the carrying out of studies on livestock watering facilities and tsetse fly clearance methods, and the training of staff in ranch management. The objective of this training program was to ensure that African managers would be formed to replace the expatriate managers demanded by the Bank.

2.5 IDA Credit funds for the ranches would be on-lent by the Government to NDC at 4% per annum for a term of 50 years, including a grace period of 10 years. NDC would on-lend these funds to the National Agricultural Company (NACO), another parastatal body to be created for BRDP I as a subsidiary of NDC, at 7% per annum for a term of 12 years including a grace period of five years. Funds repaid by NACO to NDC, but not yet due to the Bank, would be used by NDC for general agricultural development.

2.6 The Project was estimated to cost about US$2.0 million. The IDA Credit would cover about 65% of the total project cost. The other 35% would be provided by NDC through NACO in the form of equity contributions. The foreign exchange component was estimated at one-half of the Credit.

2.7 In NACO a Chief Development Officer was to be appointed who would be responsible for preparing the ranch development plans and for supervising their execution. He would also advise on and assist the training program for assistant ranch managers and field assistants.

2.8 From the start BRDP I was seen as part of a long-term beef production program in which the development of the ranches and the development of the traditional livestock sector would be complementary. With the establishment of these strategically located breeding and fattening ranches, quality and slaughter weights of animals produced in the traditional sector could be increased. The supply of higher quality animals from the traditional sector would be achieved by disease control measures, by the introduction of improved bulls, and by the provision of better marketing facilities, activities not directly supported by the project.

C. Critical Assessment of the Appraisal Report

2.9 The development of parastatal beef ranches was a good basic development concept for Tanzania for the following reasons:

- Prospects for beef on the domestic as well as on the international market were good.

- In a large, thinly populated country like Tanzania with its vast rangelands it makes sense to go into livestock development, in particular beef production.

- Tanzania's economy is heavily dependent on three agricultural crops - coffee, cotton and sisal. Livestock development provides a possibility for diversification.

- Ranching development can have a pioneer function in opening up a vast country like Tanzania.

- The establishment of large-scale ranches serves the additional purpose of putting aside contiguous tracts of land; other types of large-scale development in the future are not precluded.

- The establishment of state ranches has the advantage of avoiding from the start the basic problem of traditional livestock production, namely, the problem that livestock is individually owned while land is communal property; in consequence, each owner is intent on increasing his herd but does little to ensure an adequate supply of pasture to feed it. State ranches, on the other hand, provide an organizational structure in which responsibility for the land coincides with the responsibility for the cattle, thus avoiding the inherent tendency of traditional pastoralism towards self-destruction.1/

1/ This is also the case in other organizational structures, like large private ranches, but state ranches appeared to the Government of Tanzania to be the most appropriate choice.

2.10 The proposed ranch investments were in general to be kept to a minimum. Since Tanzania had little experience in parastatal ranching, that position was appropriate. Procurement and reimbursement procedures were spelled out clearly. The importance of secure land tenure was adequately stressed. The organizational structure foreseen for NACO was appropriate; the most important positions - those of the Chief Development Officer, the Chief Veterinary Officer and some Senior Ranch managers - were to be filled by experienced expatriates in the beginning. The capital structure of NACO was examined and found sound. Adequate attention was given to the livestock marketing situation; it was reasonable to expect that the required number of breeding animals and feeder steers could be obtained and that the projected number of finished animals could be marketed at the predicted prices.

2.11 To be noted critically in the ARI are the following points:

- Provisions for some of the farm machinery and pasture improvement facilities exceeded a minimum investment package.

- The projected time schedule was somewhat unrealistic insofar as the two planned ranches were assumed to develop at an almost ideal rate although they had then not even been located yet.

- It was not made clear to what high degree economic and financial returns forecast for the project as a whole depended on a successful steer fattening activity (particularly at Mkata) in the early years. A simulation model developed for the audit shows that the rate of return of ranch development, consisting of the building up of a breeding herd supplemented by steer fattening in the early years, drops from over 12% to below 5% if the steer fattening activity is left out. The effect is more important than, for example, an increase of all costs by 20%. Simulation tables showing these comparisons are given in annex 1.

- The estimates of NACO overhead costs were rather conservative.

The last two points, in particular, are critical in determining the economics of the project. From the point of view of the appraisal mission, however, it seemed safe to assume that good project management would realize the importance of steer fattening for the cash flow and ensure that targets were met. Also, the explosion of NACO overheads could not, at the time of appraisal, be altogether foreseen.

2.12 Thus, the project as put forth in the ARI may be called well conceived and well laid out. The projected impact in terms of beef production and supply of improved heifers was based on reasonable technical coefficients and prices. Increases of the beef price, which at the time of appraisal could have realistically been expected and which would have boosted the rate

of return (see annex 1), were not introduced into the calculation to justify the project. It was not unreasonable to expect from the project good economic and financial rates of return.

2.13 An economic rate of return of 18% and a financial rate of return of 14% were predicted. The difference between financial and economic returns was due to transfer payments only. World-market pricing and other techniques of cost-benefit analysis were at that time not in general use.

III. IMPLEMENTATION OF THE PROJECT

A. Organization and Management

3.1 NACO was legally incorporated as a subsidiary of NDC in May 1968 and registered with a share capital of T Sh 50 million. Equity paid up immediately amounted to T Sh 17,373,000. A first organizational change occurred when the National Agricultural Food Corporation (NAFCO) was created in 1969 and replaced NDC as the holding company of NACO (institutional charts in annex 2). This led to a suspension of the credit until the Bank had been satisfied to the effect that this institutional change would not adversely affect the project. In October 1969 an Amendment to the Loan Agreement was signed in which the replacement of NDC by NAFCO in all functions concerning the project was confirmed. This institutional organization of livestock development was maintained until 1974 when, with the beginning of phase II of the BRDP, substantial changes were effected.

3.2 NACO's organization, of which a chart is also given in annex 2, did not change much during the phase I period. It had a board of directors under the chairmanship of the Chief Veterinary Officer, Ministry of Agriculture and five members representing NAFCO, National Bank of Commerce, National Union of Tanganyika Workers, Tanganyika Sisal Corporation and the Commissioner of Lands. The number of meetings usually did not go beyond the legally prescribed minimum of four per annum.

3.3 For the first two years a Tanzanian with an agricultural background was General Manager. After a brief interim, he was replaced by another Tanzanian, a veterinarian, who remained in the position till October 1974. Apart from the staff in the zonal offices and on the ranches NACO employed some 30 people at its Dar es Salaam head office by 1971, a figure which was to grow within the next few years to 75. The General Manager was supported by a Chief Development Officer up to the end of 1972, a Chief Veterinary Officer, a Marketing Officer, an Administrative Officer and a Chief Accountant.

3.4 Although the initial phase of the physical development of the ranches was largely unaffected, a number of problems in organization and management soon began to make themselves felt in terms of project impact:

- All during phase I Tanzania was anxious to reduce the dependence on expatriate employment. But there was - and still is - a scarcity of qualified Tanzanians in the field of livestock development. Moreover, the remaining expatriates were not used as effectively as one would have hoped for.

- There was insufficient continuity in ranch management. This was due partly to the fact that Tanzanian managers were sent abroad for training, and partly to NACO's principle of sending the two or three experienced managers to those ranches that were in poorest shape to bring up performance within a short period of time after which these managers would be sent on. Also, NACO adopted a policy of elevating experienced ranch

managers to zonal positions, where they would have responsibility for supervising two or three enterprises and help with the training of prospective younger managerial staff. In part the turnover was a consequence of NACO's hurried efforts to train a managerial staff big enough to handle the large number of phase II ranches then being planned. Finally, death, incompetence and other unavoidable factors contributed to the problem. As a result of this revolving ranch manager system, between 1968 and 1974 not one project ranch had had less than three managers. Kitengule had had six, West Kilimanjaro nine and Mkata ten.1/

- Apart from the six ranches which NACO had taken over from NDC, three of which were included in the project, and apart from the other two ranches that were to be developed under the BRDP I, NACO took on five more ranches during the phase I period, thus increasing its responsibility and work load by over 50% of the expected level.

3.5 These factors worked together to reduce the organizational efficiency of NACO: its professional capacity was reduced while the duties increased and at the same time decentralized decision-making, i.e., on-ranch management, was weakened through rapid Africanization programs and through the switching around of managers. What resulted was an organization inefficient at the top despite its overstaffing and yet much more centralized than envisaged.

3.6 The appraisal team had proposed covenants to ensure good standards of ranch management and overhead organization. But these covenants were not included in the loan agreement along with the general clauses requiring good project execution. In any case, it is not clear whether covenants would have helped much in avoiding or rectifying the above mentioned problems.

B. Disbursement, Loan Allocation and Project Costs

3.7 The loan value (US$1.3 million) had been set to cover 65% of the total project costs, which the appraisal mission had estimated at US$2.0 million (T Sh 14.0 million). Actual total costs came within 2% of the estimate.2/

3.8 A comparison of projected with actual disbursements (annex 3, table 1) shows that the project had a slow start. Disbursements then picked up and ran for most of the time at about 80% of the projections, which compares well with other agricultural projects in Tanzania. The credit was closed, fully disbursed, in January 1974, one and one-half years later than anticipated. NAFCO's equity contribution to NACO was paid up in accordance with the disbursement of the IDA loan. These equity contributions in connection with phase I were in many cases not specified and in retrospect it is difficult to separate them from equity contributions either in connection with the acquisition by NACO of non-project ranches or in connection with phase II. NACO upon request has produced a schedule for this audit that does specify these government/NAFCO equity contributions (annex 3, table 2).

1/ The Ministry of Agriculture feels that these changes were unavoidable, particularly in view of the requirements for training staff for phase II. Also, it feels that the effects of the changes as described in the audit have been exaggerated.

2/ Tables 2 and 3 of annex 3 show slightly different values of the estimates and actuals.

All during the phase I period NACO experienced liquidity problems due to the long time lag between spending money and being reimbursed by the Treasury (IDA funds) or by NAFCO (equity contribution). It was pointed out that this was not the fault of the Bank, whose reimbursements for claims were always prompt, but rather an internal problem of administrative efficiency. One may add that the relatively complicated disbursement procedure agreed with the Bank (claims and disbursements would run through several different government agencies like NACO, NAFCO, Ministry of Agriculture, Treasury, etc.) aggravated the situation. It appears that these reimbursement problems have been eased under Phase II. But it should also be noted that the liquidity problems do not explain NACO's present overdraft of T Sh 15 million, since all the funds have been fully disbursed and the reimbursement problems alone would only have generated a comparatively small interest burden. The estimated allocation of the loan to ranching development was rather closely adhered to in aggregate figures (US$1.035 million or 80% of the total loan) while allocations to the category of technical services and training exceeded estimates by some 16%.

3.9 Looking at the ranch development expenditures in greater detail the following differences between appraisal estimates and actual expenditures may be noted (annex 3, table 3):

- Total expenditure on physical inputs was slightly higher than forecast but physical progress was in a few instances significantly below target, particularly in the case of fencing which on a unit basis was considerably more expensive than the appraisal estimates.

- Total expenditure on water supplies was about 77% of the appraisal estimate, with some schemes differing from those initially proposed.

- Total expenditure on ranch buildings was 46% higher than originally planned, partly because more emphasis was laid on the construction of ranch houses than on laborers quarters.

- Total expenditure on machinery was almost three times higher than forecast mainly because of increased unit costs and, to a lesser degree, because a wider range of equipment was purchased than was originally proposed.

- Total expenditure on livestock purchases was about 13% below the appraisal; this was mainly due to the lower than anticipated volume of steer fattening on the ranches.

By and large these deviations can be considered as the result of a normal and desirable process of adapting plans to the conditions as found during implementation.

C. Ranch Development

3.10 Not all physical targets set by the ARI could be reached and not all developments were carried out along the lines envisaged. There can be

no doubt, however, that physical developments did take place, after some initial delays, and that they resulted in operational ranches of the size envisaged which carry sizeable cattle populations and produce beef.

3.11 A detailed survey of all investments in each ranch under the BRDP was carried out by NACO's Senior Development Officer, a rather tedious work due to the incompleteness and inaccuracies of the accounting system; the results are contained in the 1973 Annual/Completion Report and again in the Bank's Project Completion Report. Numerous cross-checks were carried out, in the course of the audit field mission, which by and large confirmed these results. As to the quality of these investments the general observation is that satisfactory achievements were made in stock handling yards, dipping facilities, water supplies and buildings. The few shortcomings that were noted were usually known to the ranch management and were about to be rectified. Some criticism has to be directed against the investments in machinery. Too many transport vehicles and tractors were initially put on the ranches. Maintenance was not adequate and the useful life of these items was generally insufficient.

3.12 All during phase I and up to the present the project ranches have been spared devastating disease problems;[1/] an interesting fact is that the tsetse problem has, through a combination of bush clearing and drug application, been kept under control. There have not been any lasting droughts that might have seriously affected performance.[2/] Signs of a serious bush or weed problem are apparent on Mzeri but there it is obviously connected with overstocking.

3.13 Apart from some initial delays in the siting of the two new ranches, and in obtaining the land titles before their development plans were approved by the Bank in mid-1970, the physical development of all five ranches progressed satisfactorily and environmental conditions were favorable for the build up of productive beef herds.

D. Technical Services and Training

3.14 According to the ARI, technical services for the Project were to be provided by the Chief Development Officer assisted by the Chief Veterinary Officer. Their salaries and the costs of consultant services made up the costs of technical services.

1/ With the exception of sheep on West Kilimanjaro, where, in some years, mortality was 30% and higher. The present manager feels that sheep do very well on the ranch, except that each time there is a change in the weather they die. This state of affairs is obviously not satisfactory.

2/ It has been said that Mzeri had an 18-month drought, but available records show above average rainfall.

3.15 The major part of the training program was to consist of the construction of a training center by the government and of the training of Assistant Ranch Managers in two-year courses at this center and at the Veterinary College in Kabete, Kenya (including six months of practical work).[1/]

3.16 Initial construction of the center on Mkata ranch was delayed and it was only in 1973 that the first batch of 12 students graduated, while the ARI had envisaged the project to have trained 30 Assistant Ranch Managers by 1970.

3.17 Six of the first graduates are currently employed by NACO as assistant ranch managers and will be promoted to ranch managers when they complete their apprenticeship of between one and three years. The second batch of 12 underwent final examinations in January 1975.

3.18 Interest in these 18-month courses is very high; the number of applicants is several times larger than the number of students that can, in terms of building capacity, be taken on. The selection is made by a panel consisting of representatives of the government, of NACO and of the University.

3.19 Major problems of the training program in the past were rooted in the poor staffing situation. There was only one man fulfilling the function of headmaster, teaching staff, administrator and planner.[2/] This single individual could of course not be expected to fill a well-balanced curriculum in ranch management. Complementary teaching at the University Branch at Morogoro proved difficult since no financial or other incentives were offered to the University teachers. Extreme fragmentation due to continuous turnover of the lecture staff resulted. Besides, it proved difficult to move all the students down to Morogoro each time a lecture from a University man could be fitted into the schedule.

3.20 This year the courses are to be shifted to Morogoro where it is hoped to take in 40 students. The Mkata facilities would serve them strictly as a ranch training center.

3.21 The ranch management training element in the BRDP I was most important and has been accepted by the government as essential to its efforts of livestock development. It is certain to continue and improve in the future. Given the staffing constraints and all the starting difficulties, however, serious doubts arise as to how far this 18-month program could in the past have produced experienced ranch managers, or could have hoped to achieve this within such a short time.

1/ In addition, there was a component of training field assistants at Kongwa ranch which apparently was not financed by the project.

2/ A Tanzanian veterinarian who has recently been replaced by a UNDP-financed FAO man.

E. Remarks on the Accounting System

3.22 The Project Agreement requested that NACO maintain separate accounts for each of the project ranches, and have these audited annually, by auditors acceptable to the Bank, and sent to the Bank not later than three months after the end of the financial year.[1/] The accounts of NACO have been kept (and audited by the Tanzania Audit Corporation) in a way which shows both the overall financial position of NACO and the results achieved by individual project ranches. There were, however, certain unusual aspects of the accounting system which led to criticism in various Bank supervision and special reports. Not all of this criticism has been fully justified and rightly weighted. Cases in point are:

- It was criticized that the low book values of livestock would lead to an overstatement of NACO losses. Average book values are indeed below actual selling prices, as shown in annex 4, but this affects the profit and loss account only through the valuation of the saleable breeding herd (feeder steers are sold within a year or two and the undervaluation while on the ranch is compensated by the trading gain when the animal is sold) and here only during the build-up phase. For the established ranches this effect would by year 4 or 5 have become negligible since the ranches were then fully stocked. In such a situation the low book values of the animals that are sold during the year are compensated by the high trading gains which result from selling an animal undervalued in the books at its actual market value. Whether there is beyond this an undervaluation of the immature animals is debatable and it is good accounting practice to value immature stock conservatively.

- The accounting system was criticized for not using the distinction between developing and producing ranches which is important in financial management. This criticism is justified, but some Tanzanian officials carry the argument further by assuming that the label "development ranch" would explain and justify losses. They argue that in the building up of productive capital like ranches and cattle herds it is quite normal to have negative cash flows in the early years. This may be correct but with respect to the accounts under concern it is a complete misinterpretation. The loss figure produced is net of

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1/ The last requirement has not been met: accounts for the 1973 financial year, the same as the calendar year, were completed in November 1974, while those for earlier years were sometimes delayed by more than 12 months.

capital expenditures and already includes the growing value of the herd (if somewhat understated).

- It was criticized that NACO simply through its accounting system was making net losses or net gains on inter-ranch transfers of cattle. But the corresponding changes in valuation may be correct: the net losses (gains) stem from the fact that different book values are used on the different ranches and since the differences are based on different ecological conditions, an inter-ranch transfer could indeed imply a change in the value of the animal.

- It was criticized that headquarter costs were allocated in an unusual way, thereby giving a distorted impression of the financial performance of a ranch. In reality the budgeted costs of headquarters were, every year, under the name of "management fee", allocated to the ranches according to a key based on the carrying capacity of the ranches. If actual headquarter costs exceeded the budget, as they always did, a headquarter loss was shown. Thus the method of allocating headquarter costs was quite acceptable except that it would produce a slightly too favorable result for individual ranches whenever a headquarter loss was made (but not allocated).

These criticisms and other minor ones (e.g., concerning the separation of capital and recurrent expenditure or the "hiding" of depreciation and interest on loans in the profit and loss account) all contain an element of truth but are not really to the point. The present accounting system is basically consistent and correct but it is not used and not usable as far as ranch management is concerned. This is its truly "unusual" aspect.

3.23 The accounting system does not produce a proper trading account giving opening and closing balances of livestock and showing purchases and sales; instead, the incremental herd value, composed of regrading gains and the trading gains from selling animals over their book values, is given, with deaths during the year being subtracted and births being added. Purchases do not enter the trading account at all but are treated as a balance sheet item. The figures produced by the accounting system do not allow meaningful comparisons among ranches since essential information on trading, prices, variable and fixed operating costs, as well as on the development stage of the ranches, is not shown. Partly for this reason, the development and planning section at headquarters has insufficient contact with the accounting section and tends to use its own, different, figures for planning and management purposes. This means that ranch management is largely disassociated from financial considerations.

3.24 A ranch manager during Phase I was hardly able to change this situation since he was not kept informed about the financial position of his ranch. Accounts were presented 12 to 24 months late, which meant that, in a system with frequent turnover of managers, accounts were associated with predecessors and with the past, never with the present and the future. In addition, the ranch managers did not feel that they had the ultimate responsibility, neither technically nor financially, for the ranches, due to strong headquarter involvement in management decisions. Most ranch managers restricted their financial concerns to the regular submission of claims on a pure requirement basis without any relation to efficiency.

3.25 Many of the problems cited in the preceding paragraphs have been recognized by Tanzania. The draft PCR prepared by NACO in 1974 makes some of the same criticisms and a subsequent report by the same organization to the Ministry of Agriculture covers financial and other management aspects and points toward the steps NARCO has begun to take to rectify the situation.

IV. IMPACT OF THE PROJECT

A. Herd Development and Production

4.1 At year end 1973, which corresponds with year 5 of the ARI, the herds had been built up to over 90% of the projections. The projected and the actual herd development are laid out in detail in annex 5 and are only summarized here:

Table 2: Total Number of Cattle - End 1973

	Estimated /a	Actual	Actual as % of Estimated
Kitengule	21,613	20,320	94.0
Mkata	12,930	14,158	109.5
W. Kilimanjaro	7,642	6,008	78.6
Missenyi	18,023	19,123	106.1
Mzeri	15,291	13,457	88.0
Total	75,499	73,066	96.8

/a NACO estimates, which constitute upward revisions of the ARI.

Cattle purchases stayed below the projections and do not distort the picture which is one of success in terms of herd build-up. This also holds for the sheep flock on the West Kilimanjaro ranch: by the end of 1973 it had reached 7,052 head (1,175 AU) or 114% of the projected figure.

4.2 The development of sales has been strikingly different. According to the ARI all ranches would have reached a near maximum production level by year 5. Actual production and sales in 1973 compare with projections as follows:

Table 3: Livestock Sales, 1973

	Estimated	Actual	Actual as % of Estimated
Sales of breeding heifers			
number	1,110	-	0
value (000 Sh)	555	-	0
Sales of beef animals			
number	24,887	6,526	26
value (000 Sh)	8,974	3,531	39
Total Sales Value (000 Sh)	9,529	3,531	37

4.3 Accounting for net transfers out of the project ranches improves the figures only marginally. This means that actual achievements in terms of production and sales reached only 40% of projections, a statement which holds for the sheep flock on West Kilimanjaro as well. This still overstates the actual performance of the project for two reasons:

- Only incremental production can be attributed to the project. The ARI projections put the gross value of production from cattle at Sh 8 million at full operation but considers only 60% of this amount to be attributable to the project. Since actual production did not reach the projected level, the proportion that can be considered attributable to the project is likely to be even lower.

- Prices increased during the project period. In 1973 beef prices at the farmgate were around Sh 1.0 per lb liveweight instead of the projected Sh 0.6. This means that if calculated at constant prices actual benefits might be reduced by as much as 40%.

The shortfall of production as compared to the projections is enormous.

B. Financial Impact

4.4 The appraisal report forecast that the Project ranches would generate a positive cash flow every year and would yield a financial rate of return after tax of 11%. The actual financial performance of the five IDA-financed ranches during the phase I period was as follows:

Table 4: Ranch Operating Profits[/a]
(losses in brackets)
in Sh

	1968/69[/b]	1970	1971	1972	1973
Kitengule	(42,290)	(72,820)	549,006	377,501	(537,146)
Mkata	152,040	(188,071)	38,503	186,965	(319,378)
W. Kilimanjaro	26,190	(209,314)	(163,705)	107,281	189,280
Missenyi	-	(285,008)	(387,453)	(557,088)	(1,039,092)
Mzeri	-	(108,492)	(655,239)	(715,017)	(1,184,576)
Total[/c]	(135,940)	(863,705)	(618,888)	(600,358)	(2,890,912)

/a From the audited accounts of the various years. The figures are made up of the gross revenue from sales plus increasing herd value at book values less recurrent expenditures including a portion of NACO overheads.

/b From July 1, 1968 to June 30, 1969.

/c In each year the head office made a loss. If proportionately allocated to the ranches the loss of the project ranches would be increased each year by an amount varying from Sh 200,000 to Sh 1 million.

4.5 The ranches never made an operating profit from which capital expenditures could be repaid. Furthermore the trading loss quadrupled from 1972 to 1973 and there does not appear to be any immediate prospect of reversing the trend. Among the ranches there are differences in the various years but over time these are not consistent and one is unable to draw any firm conclusions over and above the one that the two new ranches have fared relatively worse than the other three ranches. The profit and loss accounts for 1973 of the five project ranches are shown in annex 6, tables 1-5.

4.6 NACO's financial situation progressively deteriorated during the five project years (annex 6, table 6):

Table 5: NACO's Yearly Accounts, December 31
(000 Sh)

	1968	1969/a	1970	1971	1972	1973
Loss for the Year	29		2,300	2,700	4,640	5,231
Equity/b in % of Total Liabilities	95%		56%	46%	43%	32%
Medium- and Short-Term Debt to Equity/b	1:20.0		1:3.5	1:1.8	1:2.0	1:0.9

/a Not available.

/b Represents net shareholders funds: share capital and reserves minus accumulated losses.

4.7 Over the course of the five-year period NACO's annual losses increased to Sh 5.2 million in 1973 and total losses accumulated to some Sh 15 million. Of this Sh 4.6 million was attributable to the IDA financed ranches, Sh 4.6 million to other NACO enterprises and Sh 6.1 million to NACO headquarters.1/ During the whole period NACO had a negative cash flow and, contrary to expectations, was obliged to depend on a bank overdraft (Sh 12.4 million at December 31, 1973). NACO's capital structure also deteriorated progressively and instead of the projected ratio of medium-term debt to equity of 1:5 a rather alarming ratio of 1:0.9 was reached in 1973. NACO also failed to make the first and second repayments of loan principal due to NAFCO in June and December 1974.

C. Economic Impact

4.8 There are a number of reasons why BRDP I may, from the point of view of the national economy, look more favorable than is indicated by the project finances:

- Book values of cattle used by NACO may be too low, thus understating income during the build-up phase.

- NACO has been obliged in the past to sell cattle to the Tanganyika Meat Packers Ltd. (TPL), the largest

1/ The headquarters loss arose because of an accounting convention (see 3.5). If all of the headquarter's costs had been allocated to the operating ranches their losses would have been increased proportionately.

slaughter house and meat processing plant in Tanzania, at prices below the going market prices.[1]

- Market prices for beef in Tanzania are below export parity at the official exchange rate.

- Earning and/or saving of foreign exchange as it is achieved by beef production is in all probability worth more to the Tanzanian economy than is indicated by the official exchange rate.

- Over 40% of the NACO headquarter costs consist of interest payments which, from the point of view of the national economy, constitute a transfer item rather than a cost.

4.9 These points and others are accounted for in an economic cost-benefit analysis of BRDP presented in some detail in annex 7.[2] The decisive variable in this analysis is the beef price. ARI based its projections on an average price of Sh 1.20 per lb cdw. At this price the internal rate of return based on actual performance is negative: the project would be the cause of a reduction of national income as compared with the situation without the project.

4.10 One can argue that even at the time of appraisal the price of Sh 1.20 did not represent the economic value of beef to the country. A second cost-benefit analysis has therefore been based on a price of Sh 2.0, i.e., two-thirds higher than the original estimate and above export parity of 1967/68. The rate of return is then below 2%. The project would still have to be called an economic failure. Without the increase of beef prices on the world market, ranching development in Tanzania, in the way it was implemented, would have represented a misallocation of scarce resources.

4.11 The actual economic situation of the BRDP I benefited during the project period from increasing export parity prices of beef. In 1970 Kenya reported fob Mombasa prices of around US$1,000 per metric ton of chilled and frozen beef which is equivalent to Sh 3.2 per lb. Up to 1973, the Mombasa prices increased further, but have since stabilized. For reasons of quality,[3] these prices should not be applied directly to the beef production under the BRDP I in Tanzania. However, in all of East Africa,

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1/ Government lent NACO some Sh 6 million to purchase 15,000 head of cattle and sell them at Sh 400 to TPL. NACO did not pay back this loan. It now figures in NACO's accounts as the off-season fund owed to the government.

2/ For simplicity, sheep and mutton production on West Kilimanjaro are neglected in the analysis.

3/ And also because the value of offal and side products is likely to be lower than the cost of transporting, slaughtering and processing.

export parity prices developed favorably until 1973, and it may be reasonable to assume a shadow price for Tanzanian beef of Sh 2.0/lb in the beginning, rising to Sh 3.0 over the duration of the phase I period, and stabilizing at that level. Under these assumptions, the internal rate of return works out at 13%, the profitability from the point of view of the national economy would thus appear to be acceptable.

4.12 A most important prerequisite for realizing this rate of return, which is based on a net benefit stream extending to 1983, will be the solution of the financial problem NACO is facing. In its present state NACO cannot be expected to finance increasing maintenance and replacement costs on the ranches. Failure to make these expenditures would seriously impair the whole ranching operation.

4.13 The foregoing analyses show that BRDP I, as implemented in practice, would not have been a desirable line of development for Tanzania at appraisal price estimates. But, because of the increase in the value of beef,1/ the project constitutes a profitable combination of resources in spite of the low level of productivity and the poor management performance.

4.14 It must be stressed that the achievement of the BRDP I is unsatisfactory if compared to what can be achieved in ranching development in East Africa. Estimates of potential rates of return two to three times higher would not be exaggerated with the 1973 high beef prices. In other words - related to the investment of Sh 14 million - the BRDP I is every year earning two to four million shillings less for the national economy than could be fairly expected.

1/ This should not be thought of as a pure windfall gain, for part of the rationale for undertaking the project was the favorable market and price prospects.

V. PERFORMANCE ANALYSIS

5.1 The discrepancy in the BRDP I between the "actual" - be it negative from the financial point of view (para. 4.5) or positive to some degree from the economic point of view (para. 4.13) - and the "possible" is striking.[1/] A more detailed performance analysis appears warranted to trace the reasons for the shortcoming and offer suggestions for improvement. For this analysis, which must be comparative in nature, it is possible to resort to the body of information and experience that has been accumulated in East Africa on ranching development (in Tanzania as well as in neighboring countries, in private as well as in public sector development, and in World Bank financed developments as well as others).

A. Analysis of Expenditures

5.2 Development Expenditures (excluding livestock): With respect to physical development, experience shows that under East African conditions 100 Sh per AU of the fully stocked ranch is about the absolute minimum. This figure in some cases goes up to 300 and 400 Sh/AU. On the BRDP I ranches in Tanzania, 6.5 million Sh were spent on physical developments, which works out at about Sh 108 per animal unit and Sh 13/acre. Even if one takes into account the few investments that had been undertaken on the Tanzanian ranches before the loan, the aggregate of physical development expenditures can be considered quite low.

5.3 A comparison with ranching development in other parts of East Africa points to a few places where savings could have been effected:

- Initial development may be cheaper if done by contract instead of by equipping the ranches with heavy machinery such as mobile graders, etc.; one tractor with trailer and scraper would be sufficient for a ranch. Admittedly, the contract business has declined in Tanzania and does not offer the same savings as it does elsewhere in the region. The Ministry reports that its experience is that charges quoted by contractors have been "very high and unreasonable."
- One might also try to restrict vehicles to one 4-wheel drive and to one pick-up truck per ranch. Some of the BRDPI ranches had three or four landrovers at a time.
- Some of the BRDPI ranches were given tractors with gyromowers and ploughs over and above what is necessary for construction and maintenance of firebreaks. This was done with a view to pasture improvement. At the initial stage of development, and considering the quality of management, this is, however, not a promising line of development.

1/ The accounts show that there is no basic difference between the project ranches and the non-project ranches. Hence, it is justified to talk about parastatal ranching in Tanzania in general.

- Posthole diggers are quite unnecessary.

- Generators may be unnecessary; instead of electric welding, gas welding can be used.

- It may be preferable to construct night bomas of thorn bush instead of permanent yards, not only to economize but also because the mobility of the bomas is considered an advantage. It may be noted, however, that the Ministry disagrees with this view, and feels that permanent yards used in rotation are economical though initially costly.

5.4 There were thus undoubtedly possibilities for cutting the cost of development of the BRDP ranches. The major reason why overall development expenditures on the Tanzanian ranches were actually kept that low was that water development, adequate for the circumstances, was cheap at 3.4 Sh/acre. Only on Mzeri ranch is the rate somewhat higher: 9.3 Sh, but this still does not reach the level of 20 Sh (and more) which often makes ranching development in other parts of East Africa rather expensive.

5.5 Variable Operating Expenses: The BRDP ranches report so-called livestock expenses of Sh 36 to 57 per AU, which does not appear excessive. Care has to be taken because the definition of this cost item is somewhat unusual. The more common term is "variable operating expenses". A reasonable composition of this cost item would look as follows:

	Sh/AU p.a.
Herdsmen/a	10
Vet. drugs and treatment/b	20
Minerals	10
Dipping/c	10
Water	10
Total	60

/a At Sh 150 per month per herdsman and 200 animals per herdsman.

/b This bill would normally grow with time as diseases build up; under conditions of a low or medium tsetse challenge the additional costs of drug treatment are balanced out to some extent by the lower incidence of other diseases.

/c Twice weekly spraying at about 15 cents per head.

From the BRDP ranches this detailed breakdown is not readily available; a series of crosschecks indicated that in general the ranches do not exceed these figures. Experience shows that these variable operating costs are quite a stable cost item, irrespective of ecological conditions and/or management.

5.6 Fixed Operating Costs: Fixed on-ranch operating costs on the five phase I ranches in Tanzania in 1973 were as follows (for details, see annex 8):

Table 6: Fixed Operating Costs, 1973

	Total 000 Sh	Per AU/a Sh
Motor Transport	747	12.5
Tractor Operation	479	8.0
Maintenance	387	6.5
Salaries and Allowances	434	7.2
Administration	196	3.3
Other Overheads and Unallocated	578	9.6
Less Charges to Capital	113	-
Total	2,708	45.1

/a Related to the carrying capacity of the ranch.

5.7 Under East African conditions, a figure of Sh 60 per AU may be considered as the upper limit for fixed operating expenses. The above table shows that the BRDP ranches stay comfortably below that limit. For the different ranches, the figure ranges from Sh 40 to 55. On a per acre basis the figure varies between Sh 4.9 and 6.7, also a quite acceptable level. This is not to say that there is no room for savings. Thus the item "other overheads and unallocated" appears unacceptably high and expenditures for vehicle operation account for almost half of total expenses. This has to be seen in connection with the development expenditures discussed above. Allocation of too many vehicles not only increases investment costs but also puts a heavy burden on the recurrent account. Once a vehicle is there, it is used regardless of whether this is objectively necessary or not.

5.8 A ranch whose development costs run slightly over 100 Sh/AU, and whose average level of variable and fixed operating costs is about 100 Sh/AU,

would in East Africa be considered in a position to show good or even very good economic and financial results.

5.9 The parastatal ranches in Tanzania, however, have to carry additional heavy fixed costs which are larger than the on-ranch costs mentioned above:

Table 7: Total Fixed Operating Costs of the Phase I Ranches in Tanzania in 1973/a

	Total 000 Sh	Per AU Sh
On-ranch Costs	2,708	45.1
NACO Headquarters Costs	2,239	36.3
NACO Interest Charges	1,042	17.4
Total	5,989	99.8

/a For details, see annex 8.

5.10 The NACO overheads at more than Sh 50/AU are excessive by any standards. Considering interest charges first, they should not exceed Sh 14/AU even if all of the ranch development costs and all of the fixed on-ranch operating costs were financed by loan money (assuming an interest rate of 7%). This shows that NACO's losses cannot be blamed on the poor capital structure alone and indicates that NACO incurs debts not only to finance on-ranch costs but also to finance costs outside the ranches. Considering the headquarters costs next, this is an item that is quite unusual since it would normally be expected to be covered by the differential in the interest rate that is charged and that has to be paid.1/

5.11 Elsewhere in East Africa, private firms have submitted tenders to take over technical supervision, financial control and accounting of ranches. To a ranch of roughly 40,000 acres carrying some 2,600 AU, these services were offered at a cost of Sh 100,000. At this rate appropriate overhead NACO Headquarters Costs for the five Tanzanian ranches would range between Sh 0.5 and Sh 1.0 million rather than the Sh 2.2 million actually incurred. The difference, ranging between Sh 1.2 million and Sh 1.7 million, is a rough measure of the project's developmental costs to the government - of training, for example, and of initial institutional growth, both of which factors benefit future projects as well - and of the inefficiencies of the present management system.

5.12 If one accepts the figure of Sh 60/AU as a maximum for fixed operating expenses, the five phase I ranches in Tanzania could contribute close to Sh 1 million annually for just the services mentioned.

5.13 At present, however, the five ranches are charged with not one million but over three million Sh headquarter costs. It remains to be

1/ Thus, upon Tanzania's request, the Bank had agreed by memo of August 5, 1968 that the on-lending rate from NDC to NACO should be reduced to 4% (while NACO could hypothetically charge its ranches 7% or more). It appears, however, that this rate was never finalized, and that NACO is still being charged a rate of 7% by NDC.

examined in the following section whether this is compensated by good central services for the ranches and consequently a high level of production and productivity.

B. Analysis of Revenues

5.14 Offtake: As total herd numbers developed rather close to projections, this performance analysis can focus on the efficiency of the herds. An analysis of offtake is only reasonable for 1973 since before that year the herds were still too involved in the build-up phase. However, even for 1973 it is difficult to obtain unambiguous results because of the many transfers among ranches.

Table 8: Forecast and Actual Offtake, 1973

	Audit Actual Estimates		ARI Forecasts
	Sales Offtake/a	Offtake, incl. Net Transfers Out/b	
Kitengule	5.8%	10.4%	17.4%
Mkata	18.6%	14.1%	- /c
West Kilimanjaro	13.8%/d	29.4%(?)	15.8%
Missenyi	2.6%	2.2%	10.4%/e
Mzeri	3.4%	-2.6%	10.4%/e
Average	7.7%	9.6%	14.5%
Average without Missenyi and Mzeri	10.9%	14.6%	17.0%

/a Only ranch-bred animals.
/b i.e., out of project ranches to other NACO ranches.
/c Projected to become a pure fattening ranch.
/d Only cattle.
/e Year 3 of model ranch development.

5.15 Compared with the appraisal estimate there was a shortfall in offtake in 1973 of 5 percentage points, or 2,000 animals, which represents about one million shillings of income foregone. In addition there were only 1,650 purchased steers sold, as against 15,000 in the original estimate. Assuming a margin of only Sh 100 per head, the shortfall in gross income is

again over one million Sh.[1] This latter shortfall is, however, rather academic since its principle cause is a changed development policy of Mkata ranch. This takes one back to the overall offtake figures. A projection of a 14.5% offtake after five years of ranch development is conservative by any standards.[2] In actual development this efficiency level was not attained; and for the two newly established ranches, even if one accounts for a two-year delay, offtakes are catastrophic.

5.16 When asked about the causes of this low offtake the ranch managers generally pointed out that marketing was ultimately NACO headquarters' responsibility. NACO officials in turn emphasized the unfortunate marketing situation:

- The Uganda market, so important for the West Lake ranches, had been closed due to political problems.
- Access to the Kenyan market across Lake Victoria proved difficult and unrewarding due to heavy losses and high condemnation rates.
- Zambia had stopped ordering beef in Tanzania since Botswana could supply her more cheaply.
- TPL did not offer good prices and frequently downgraded NACO animals.

These arguments are all valid but do not explain why NACO did not make an extraordinary effort to find alternative profitable outlets, given the domestic and the external demand situation and the company's precarious financial position.

5.17 Marketing problems alone do not adequately explain the low offtake, as indicated by the herd performance indicators and management coefficients shown in table 9. Weaning rates showed a considerable variation over the years but stayed clearly below the forecast figure of 65%, which was to increase to 75% over a four-year period. The weaning rate for sheep on West Kilimanjaro increased from 61% in 1970 to 107% in 1971 and then dropped again to 96% in 1972 and 53% in 1973. The weaning rate is a ranch coefficient particularly sensitive to management quality. Thus NACO's senior ranch manager, a Tanzanian with long years of ranching experience and a most competent individual, managed Kitengule during the phase I period and apparently raised the weaning rate up to over 90%. He then took over Mkata and raised the weaning rate to 83%. The rates before and after this management as well as the rates on the other phase I ranches show that without good ranch management acceptable weaning rates cannot be achieved. With a weaning rate of 55% it is simply not possible to run a profitable ranch (calculations are shown in annex 8).

1/ Annex 1 shows that a steer fattening activity in the early years of ranch development is of great economic significance.

2/ The ARI estimated offtake in traditional herds at 11 to 13%, including mortality.

Table 9: Production Coefficients on the Phase I Ranches

	1969	1970	1971	1972	1973	Average %
Kitengule Ranch						
Weaning Rate (%)	45.1	67.2	92.5	36.9/b	41.8	56.7
Culling Rate (%) (Cows and bulls)	1.2	0.8	2.4	9.0	5.7	3.8
West Kilimanjaro Ranch/a						
Weaning Rate (%)	49.9	57.3	54.2	59.6	56.1	55.4
Culling Rate (%) (Cows and bulls)	10.9	8.6	0.1	6.8	2.9	5.7
Mkata Ranch						
Weaning Rate (%)	36.7	33.5	71.0	52.7	83.1	55.4
Culling Rate (%) (Cows and bulls)	2.7	3.0	3.0	1.1	2.9	2.5
Missenyi Ranch						
Weaning Rate (%)	-	-	-	102.4/b	69.6	86.0
Culling Rate (%) (Cows and bulls)	-	-	-	0.1	2.0	1.0
Mzeri Ranch						
Weaning Rate (%)	-	-	-	44.6	48.0	46.3
Culling Rate (%) (Cows and bulls)	-	-	-	10.6	3.3	6.6

/a Cattle only.

/b Due to a transfer of breeding cows from Kitengule.

5.18 Culling rates of breeding cows and bulls have been stepped up recently, but throughout the project period they remained exceedingly low (and practically non-existent in heifers), which indicates an overemphasis on the building up of the herd. This increased the proportion of non-productive animals in the herds; thus raising operating costs while lowering calving rates and reducing sales. Overall mortality of the cattle herds was at about 4% except on Mzeri (10%) where several times more animals died every year than were sold. Particularly worrying are, first, the causes of mortality: up to 62% of the total mortality cannot be adequately explained ("just lost", "old age", "unknown"); and second, the high mortality in sheep (30%, in 1970, since then between 11% and 13%).

5.19 Annex 8 shows, for the model ranch designed by the ARI, how through these management variables the economic performance of a ranch can

be affected. With forecast coefficients the ranch has an internal rate of return of 12%; if the weaning rate stays at 55% instead of being raised gradually to 75% the internal rate of return drops below 10%; if in addition the selling age of steers is increased and replacement rates for breeding animals are lowered the return is below 6%.

5.20 Sales: Apart from offtake in numbers, weights of the animals sold and prices fetched are the most important factors determining herd productivity.

5.21 At the time of appraisal of phase I the average price of beef was in the order of Sh 1.20 per lb. By 1973 this price had increased to Sh 2.0. Assuming that this price per lb was realized, the actual prices realized per animal were used to compute the weights of the animals sold:

Table 10: Computed Carcass Weights
(lbs)

	According to ARI	Computed from Selling Prices	Difference /a
Bulls	583	308	89%
Cows	366	218	68%
Heifers	300	111	170%
Calves	-	49	-
Ranch Bred Steers	416	365	14%
Purchased Steers	266	213	25%

/a Necessary increase of "computed", in %, to reach ARI projection.

5.22 There are at least two reasons for the discrepancy between the projected and the computed actual liveweights:

- Relatively poor animals are sold by the ranches (though some of the computed weights are so low as to raise questions of credibility); and

- The NACO ranches do not realize or do not report the full sale value of the animals as indicated by the going market prices.

5.23 It is likely that both reasons contributed and resulted in a further reduction of the financial performance of the BRDP.1/ The possibility

1/ The Ministry has said that the discrepancy is mainly due to "emergency sales." If this is indeed the key factor, the question must be asked why these emergency situations are allowed to assume such dramatic dimensions.

of and reasons for under-reporting, which may also affect the records of animals leaving the ranches, is one that deserves further careful examination, beyond the scope of the audit. The actual performance of the ranches may be better than the reported figures imply.

C. The Crucial Factors: Organization and Management

5.24 The performance analysis may be summarized as follows:

- The physical development of the ranches was carried out in an economic and efficient way. Only a few savings could have been realized.

- On-ranch operating costs - variable and fixed - have been kept within reasonable limits.

- Herds have been built up rather quickly, but their productivity is very low. Crucial production coefficients indicate poor management standards on the ranches. Particularly worrying are the low offtake rates.

- NACO headquarter costs are so high that they could not even be borne by well-managed ranches.

Thus, the five ranches under the BRDP were well planned and built up. But management on the ranches is not capable of making use of the resources and installations, and the whole overhead organization, while not having any apparent positive effect on the running of the ranches, is excessively expensive.

5.25 NACO runs a voluminous head office with over 70 employees at Dar es Salaam. Performance in important central functions like marketing, financial control and accounting is inadequate. The division of responsibility between ranch managers and NACO head office staff is not clear. Head office feels that the ranch managers need assistance. The ranch managers feel that head office often interferes unduly; they themselves have, however, no information about the financial status of their ranches and they are not held responsible for the financial and economic performance of their ranches. Rather they enjoy a civil servant status of no rewards and no punishments.[1/] Furthermore, the professional capacity of NACO's ranch managers must, with few exceptions, be seriously questioned. The 18-month

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1/ This does not necessarily mean personal rewards. One could, for instance, envisage a situation in which the ranch manager is kept up-to-date regarding the financial situation of his ranch and about the impact of his management decisions. The ranches could then be granted a proportion of the annual financial surplus for reinvestment on the ranch, instead of pooling all funds.

training course in ranch management was never meant to be sufficient for a school leaver to become a ranch manager but this is what has happened in practice[1/] and the frequent transfer of managers has further aggravated the situation.

5.26 Inadequate overhead organization and poor on-ranch management are the causes of the unsatisfactory performance of the BRDP in Tanzania. The present situation is one in which overhead expenses alone regularly exceed the gross revenue from cattle sales.

1/ "Assistant Managers" trained at the center have been de facto managers of individual ranches.

VI. THE BANK'S ROLE

6.1 During the appraisal phase of the BRDP in Tanzania some awkward situations arose in which Tanzania believed it had received a firm commitment from the Bank while the Bank had in fact not offered one or at least not wanted to do so. In part this occurred because so many related institutions were involved (FAO, the IBRD/FAO Cooperative Program, the Nairobi Office, ADS) and because several Bank missions were sent before the actual appraisal mission. Definitions of responsibilities and competences should have been more clear-cut and the recipient country should have been better informed about the Bank procedures. It appears that these problems have been solved by now.

6.2 The appraisal report was good and realistic and suggested carefully elaborated covenants that would ensure success of the project. With the experience of the BRDP and other projects in Eastern Africa one would, however, now demand that the appraisal reports should include the types of records, accounts and reports necessary for the monitoring of the project and specification of a position clearly charged with this responsibility. Subsequent supervision missions cannot do more than identify deficiencies and shortcomings; they neither have the time to devise the appropriate systems nor the standing to enforce their adoption. The case of the BRDP shows that the lack of an appropriate accounting system and a specific assignment not only renders ex post analysis very difficult but can be one of the causes for the unsatisfactory performance of a project.

6.3 During implementation neither the size and organizational capacity nor the managerial quality of NACO once established were adjusted in the interest of the phase I project. To what degree this reflected policies and inertia at NAFCO and other governmental levels superior to NACO could not be determined. Nevertheless, NACO, whose capacity to handle the phase I ranches alone could hardly be assured, took on five other ranches over the five-year period. At the same time, expatriate management of ranches became a political issue and was made impossible. Thus control was lost over ranching development at the national level (NACO) as well as at the ranch level. It would have been the duty of the supervision missions to point this out in no ambivalent terms, but it really was only one mission, that of November 1970, which seriously dealt with the organizational and managerial aspects. The team threatened to recommend to IDA suspension of disbursements unless some of the most pressing problems would be resolved within three weeks. Agreements were reached with Tanzania on all points, but it appears that subsequently Bank staff was prompted to use softer procedures and more friendly wordings. Thus the supervision reports commented neutrally on problems that had already reached serious dimensions. The background to this shift was not explored in depth in this audit, and it may have been due to nothing more than the differing temperaments of successive supervision teams.

6.4 A general question with a political dimension arises from the project: how far can institutional and managerial performances really be regulated by a project agreement. Could the Bank on the basis of the

agreement have expressed opposition to NACO's plan to take over non-project ranches which had no direct relation to the project other than further reducing NACO's capacities to handle project affairs? Could the Bank have exerted more control if the agreement had been expanded to cover all of NACO's activities, a point that was raised by supervision staff? Could the Bank insist on good management standards, if this, for the particular case under concern, happens to imply a decision contrary to a country's explicit Africanization policy? For an ongoing project the Bank's influence may indeed be limited, but the question comes up whether in the process of appraising and negotiating phase II the Bank could not have used more of its influence to rectify the problems of phase I.

6.5 Under phase II it was envisaged to develop 11 parastatal (NACO) ranches, four District Development Corporation ranches sponsored by district councils, and 22 Ujamaa cooperative ranches; to develop three large livestock markets, 10 medium-size markets, and 20 small markets and to remodel 104 small existing markets; to develop 2,300 km of new stock routes and to improve 2,200 km of existing stock routes; to establish four new holding grounds and to improve 23 existing ones; to reconstruct one meat processing plant and to build two new ones; and to provide technical services and training, and future project preparation work. The cost of phase II over five years were estimated at US$24.7 million (Sh 173 million) and a rate of return of 35% was projected.

6.6 Phase II was appraised in February 1972 and negotiated in February 1973. Even at the earlier date the available information was revealing some potential problems in phase I apart from the ranch establishment activity, though the obvious progress with the latter gave reason for cautious optimism. By early 1973, however, the management shortfall was beginning to assume, for some observers, serious proportions. In particular there was a report dated January 22, 1973 from the resident mission in Nairobi specifically intended to bring to the attention of the negotiating parties, gathering in Washington, NACO's organizational and financial difficulties. Negotiations started February 7, 1973 and the agreement for phase II, and credit 382-TA for US$18.5 million, was signed on May 23, 1973.

6.7 There were several reasons for going ahead with phase II. First, phase I had always been considered the precursor of a larger project encompassing the overall livestock sector: a specialist had been in Tanzania for a year specifically for the purpose of developing the expansion program and both the government and the Bank knew that the other assumed that phase II in some shape was close to inevitable. Second, the farm establishment activity had succeeded very well, and by February 1973 there was still no definitive evidence that beef coefficients would run well below forecasts (the January 22 report had concentrated on management issues common to all of NACO's operations). Third, there was reason to hope, perhaps more so in Bank headquarters than in the Nairobi office, that resources provided under phase II would help correct rather than compound NACO's difficulties, particularly after the beef products had begun to be marketed. Fourth, headquarters itself was in the turmoil of the 1972 reorganization, and there was considerable loss in continuity of staff handling the project. Lastly, a factor to

which observers give varying weight, country considerations favoring approval were involved.

6.7 Given the convergence of these various influences, a few of which cannot be considered uniformly healthy but which are in inevitable attendance to many of the Bank's projects, it is not surprising phase II was signed. But in hindsight one can question the size of the loan and the failure, in spite of warnings, to greatly strengthen the conditions for successful management and also to ensure that those conditions were met. That may not have been so obvious in February 1973, but the experience does provide a useful lesson for the future. (Some of the other influences - the seemingly irreversible momentum of repeater projects moving into the appraisal stage, the disruption caused by staff reorganizations, and the political dimensions, could perhaps be partly moderated as well.) While one can argue that a second phase made sense to the extent it helped NACO overcome the problems that emerged from the first phase, Credit 382-TA added an enormous additional burden and threatened to create more problems than it eliminated. The Bank would have probably been better advised to restrain the expansionary elements and work with NACO in phase II in strengthening the training and management elements, perhaps deferring some of the integrated supplemental activities.

6.8 It is no surprise at all that Tanzania's livestock development program phase II is, according to the most recent supervision mission, experiencing "very serious difficulties" instead of producing the projected rate of return.

VII. CONCLUDING REMARKS

7.1 Beef ranching development may have benefits in terms of opening up a country, creating employment, teaching skills and producing protein, and in this respect the impressive growth of the physical setup and the herds on project ranches does not pass unadmired.[1/] The existence of positive aspects must not, however, divert attention from the fact that beef ranching development is a down-to-earth commercial undertaking. Its success, from the point of view of the ranch as well as of the national economy, can first and foremost be assessed by applying commercial criteria like offtake, unit costs, prices, profit, capital formation and foreign exchange earning. These are a function of sound management of ranch operation, and that is the function in which the project has to make the most progress. If objectives like equity, employment and nutrition are in the foreground, beef ranching is less suitable than most other agricultural development instruments.

7.2 A most important function of beef ranching in the development of a country like Tanzania is to generate a maximum of funds for the government for investment in other sectors of the economy. In this respect phase I of the Beef Ranching Development Project in Tanzania has not yet reached a satisfactory performance level. The Bank must bear some of the responsibility for this result, since successive supervision missions and the appraisal mission for phase II either focused on other issues or were powerless to call for needed reform.

1/ In its challenging commentary on an earlier draft of this audit, the Ministry placed special emphasis on some of these effects. The following quote is drawn from the brief concluding section of those comments: "The Livestock Development Project Phase I, we feel, has achieved all aspects it was intended to fulfill.... The opening up of the country otherwise full of tsetse infested bush cannot be taken as a small contribution to the economy. It may not be evident within this period of the audit report but its impact will be felt in the long run."

ANNEXES

Annex 1
PPAR/BRDP
Credit 132-TA

SENSITIVITY ANALYSIS OF AR I

I Computer Simulation of the AR I Model Ranch Projection

II Effect of Dropping the Steer Fattening Activity

III Effect of Varying Costs and Benefits

Symbols Used:

COWRTE	Cow Replacement Rate
CALRTE	Calving Rate
DERTEC	Calf Mortality (Death Rate Calves)
DERTE 1	Mortality of Yearlings
DERTE 2	Mortality of Other Stock
BULRAT	Bull Ratio
BURRTE	Bull Replacement Rate
CALAGE	Calving Age
SELAGE	Selling Age of Fat Steers
CFCAL	Conversion Factor (Animal Units) Calves
CFYRL	" " Yearlings
CF2YR	" " 2-3 Year Olds
CFOFE	" " Females Over Three Years
CFOMA	" " Males " " "
COWS	Cows
CALVEF	Female Calves
HEIF 1	Heifer Yearlings
HEIF 2	2-year-old Heifers
HEIF 3	3-year-old Heifers
CALVEM	Male Calves
BULLS 1	Male Yearlings
BULLS 2	2-year-old Males
BULLSF	Steers Over 3 Years
BULLSB	Breeding Bulls
TOTAN	Total Number of Animals
TOTSU	Total Number of Animal Units
CFHERD	Mean Conversion Factor for the Herd
MAXSU	Maximum Number of Animal Units
MAXAN	Maximum Number of Animals
MAXCOW	Maximum Number of Cows at Given MAXSU
DEFICIT	Difference between MAXSU and TOTSU
L	Planning Period in Years

IBRD 123 TA PHASE 1 BREEDING/FATTENING RANCH,50000 ACRES,12000 ANIMAL UNITS
OPP.COSTS YEAR 1 = VALUE OF INITIAL HERD & PURCHASES YEAR 1
SIMULATION OF AN 1 PROJECTIONS = STANDARD

PPAR/BRDP
CREDIT 132-TA

CALCULATION OF THE EQUILIBRIUM HERD

INPUT DATA

PRODUCTION COEFFICIENTS

CALRTE	DETREC	DERTE1	DERTE2	BULRAT	BURRTE	CALAGE	SELAGE
0,85	0,12	0,04	0,04	0,03	0,15	3,00	4,01

CONVERSION FACTORS

CFCAL	CFYRL	CFZYR	CFOFE	CFOMA
0,00	1,00	1,00	1,00	1,00

MAXSU
12000,00

E Q U I L I B R I U M H E R D

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	CFHERD	MAXAN	MAXCOW
100,00	37,40	35,90	34,47	0,00	37,40	35,90	34,47	32,97	3,00	351,51	276,71	0,79	15243,79	4336,61

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
28,45,/.	10,64,/.	10,21,/.	9,81,/.	0,00,/.	10,64,/.	10,21,/.	9,81,/.	9,38,/.	0,85,/.

CALCULATION OF THE HERD DEVELOPMENT

PPAR/BRDP
CREDIT 132-TA

INPUT DATA

1. NUMBER OF YEARS

L= 15

2. PRODUCTION COEFFICIENTS

YEAR	COURTE	CALRTE	DERTEC	DERTE1	DERTE2	BULRAT	BURRTE	CALAGE	SELAGE	PCBR
1	0.15	0.70	0.14	0.06	0.06	0.03	0.15	3.00	4.00	1.00
2	0.15	0.75	0.13	0.05	0.05	0.03	0.15	3.00	4.00	1.00
3	0.15	0.80	0.13	0.05	0.05	0.03	0.15	3.00	4.00	1.00
4	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
5	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
6	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
7	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
8	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
9	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
10	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
11	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
12	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
13	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
14	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00
15	0.15	0.85	0.12	0.04	0.04	0.03	0.15	3.00	4.00	1.00

IBRD 132 TA PHASE 1 BREEDING/FATTENING RANCH,80000 ACRES,12000 ANIMAL UNITS
OPP.COSTS YEAR 1 # VALUE OF INITIAL HERD & PURCHASES YEAR 1
SIMULATION OF AR 1 PROJECTIONS # STANDARD

PPAR/BRDP
CREDIT 132-TA

TABLE 1 HERD DEVELOPMENT

YEAR	COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	DEFICIT
1	1500.3	451.6	450.3	1622.4	0.0	451.6	450.3	423.0	4391.9	45.0	9786.3	8883.1	3116.9
2	2897.7	945.4	429.0	1377.7	0.0	945.4	429.0	427.7	4189.5	86.9	11728.2	9837.5	2162.5
3	3840.8	1336.6	898.1	407.5	0.0	1336.6	898.1	407.5	4189.9	115.2	13430.4	10757.2	1242.8
4	3672.2	1373.4	1283.1	862.2	0.0	1373.4	1283.1	862.2	4215.4	110.2	15035.1	12288.3	-288.3
5	3983.5	1489.8	1318.5	1231.8	0.0	1489.8	1318.5	1231.8	3690.5	119.5	15873.7	12894.0	-894.0
6	4336.6	1621.9	1430.2	1265.7	0.0	1621.9	1430.2	1265.7	3083.8	130.1	16186.2	12942.4	-942.4
7	4336.6	1621.9	1557.0	1373.0	0.0	1621.9	1557.0	1373.0	3116.4	130.1	16687.0	13443.2	-1443.2
8	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	2259.4	130.1	16073.4	12829.6	-829.6
9	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
10	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
11	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
12	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
13	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
14	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
15	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
28.47./.	10.65./.	10.22./.	9.81./.	0.00./.	10.65./.	10.22./.	9.81./.	9.30./.	0.85./.

THE AVERAGE GROWTH RATE OF THE HERD IS APPROXIMATELY 1.89./.

ANNEX 1
Table 1

TABLE 2 LIST OF COSTS AND BENEFITS

YEAR	OPPORTUNITY COSTS	INVESTMENT/ REPLACEMENT COSTS	FIXED OPERATING COSTS	VARIABLE OPERATING COSTS	LIVESTOCK PURCHASE COSTS	TOTAL COSTS	BENEFITS LIVESTOCK SALES	OTHER BENEFITS	TOTAL BENEFITS	NET BENEFITS
1	2186000.	330000.	150000.	293588,46	0.	2959588.	0.	0.	0.	-2959588.
2	0.	330000.	225000.	351847,50	1072000.	1978847.	1563145.	0.	1563145.	-415703.
3	0.	330000.	300000.	402910,60	820800.	1853711.	1577368.	0.	1577368.	-276343.
4	0.	330000.	300000.	451052,96	836800.	1917853.	1725759.	0.	1725759.	-192094.
5	0.	0.	300000.	476210,70	652800.	1429011.	1888458.	0.	1888458.	459448.
6	0.	0.	300000.	485586,65	454400.	1239987.	1862115.	0.	1862115.	622129.
7	0.	0.	300000.	500608,91	452800.	1253409.	1827258.	0.	1827258.	573849.
8	0.	0.	300000.	482201,60	243200.	1025402.	1973568.	0.	1973568.	948167.
9	0.	0.	300000.	456906,62	43200.	800107.	1672677.	0.	1672677.	872570.
10	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
11	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
12	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
13	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
14	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
15	0.	0.	300000.	456906,62	43200.	800107.	1296281.	5154612.	6450894.	5650787.

DISCOUNTED PROFITABILITY MEASURES

DISCOUNT RATE	1,00./.	5,00./.	10,00./.	15,00./.
NET PRESENT VALUE	6510461,30	2946675,45	520834,71	-741047,52

THE INTERNAL RATE OF RETURN IS APPROXIMATELY 12,06./.

ANNEX 1
Table 2

IBRD 132 TA PHASE 1 BREEDING/FATTENING RANCH,80000 ACRES,12000 ANIMAL UNITS
OPP.COSTS YEAR 1 # VALUE OF INITIAL HERD & PURCHASES YEAR 1
R 3 , LIKE STANDARD BUT NO STEER PURCHASE

PPAR/BR&P
CREDIT 132-TA

TABLE 3 HERD DEVELOPMENT

YEAR	COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	DEFICIT
1	1500,3	451,6	450,3	1622,4	0,0	451,6	450,3	423,0	391,3	45,0	5785,6	4882,5	7117,5
2	2897,7	945,4	429,0	1377,7	0,0	945,4	429,0	427,7	389,5	86,9	7928,2	6037,5	5962,5
3	3840,8	1336,6	898,1	407,5	0,0	1336,6	898,1	407,5	389,9	115,2	9630,4	6957,2	5042,8
4	3672,2	1373,4	1283,1	862,2	0,0	1375,6	1283,1	862,2	375,4	110,2	11195,1	8448,3	3551,7
5	3983,5	1489,8	1318,5	1231,8	0,0	1489,8	1318,5	1231,8	810,5	119,5	12993,7	10014,0	1986,0
6	4617,8	1727,1	1430,2	1265,7	0,0	1727,1	1430,2	1265,7	1162,6	138,5	14764,9	11310,8	689,2
7	4336,6	1621,9	1658,0	1373,0	0,0	1621,9	1658,0	1373,0	1196,4	130,1	14968,9	11725,1	274,9
8	4336,6	1621,9	1557,0	1591,7	0,0	1621,9	1557,0	1591,7	1299,4	130,1	15307,2	12063,4	-63,4
9	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1509,3	130,1	15323,3	12079,5	-79,5
10	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6
11	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6
12	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6
13	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6
14	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6
15	4336,6	1621,9	1557,0	1494,7	0,0	1621,9	1557,0	1494,7	1416,2	130,1	15230,2	11986,4	13,6

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
28,47./.	10,65./.	10,22./.	9,81./.	0,00./.	10,65./.	10,22./.	9,81./.	9,30./.	0,85./.

THE AVERAGE GROWTH RATE OF THE HERD IS APPROXIMATELY 5,77./.

ANNEX 1
Table 3

TABLE 4 LIST OF COSTS AND BENEFITS

YEAR	OPPORTUNITY COSTS	INVESTMENT/ REPLACEMENT COSTS	FIXED OPERATING COSTS	VARIABLE OPERATING COSTS	LIVESTOCK PURCHASE COSTS	TOTAL COSTS	BENEFITS LIVESTOCK SALES	OTHER BENEFITS	TOTAL BENEFITS	NET BENEFITS
1	2186000.	330000.	150000.	173569,26	0.	2839569.	0.	0.	0.	-2839569.
2	0.	330000.	225000.	237847,50	272000.	1064847.	202927.	0.	202927.	-861920.
3	0.	330000.	300000.	288910,60	20880.	939711.	209368.	0.	209368.	-730343.
4	0.	330000.	300000.	335852,96	36880.	1002653.	281759.	0.	281759.	-720894.
5	0.	0.	300000.	389810,70	52880.	742611.	352458.	0.	352458.	-390152.
6	0.	0.	300000.	442948,19	54400.	797348.	531609.	0.	531609.	-265739.
7	0.	0.	300000.	449066,13	52880.	801866.	1097215.	0.	1097215.	295349.
8	0.	0.	300000.	459216,54	43200.	802417.	1109646.	0.	1109646.	307229.
9	0.	0.	300000.	459697,78	43200.	802898.	1253551.	0.	1253551.	450653.
10	0.	0.	300000.	456906,62	43200.	800107.	1342801.	0.	1342801.	542694.
11	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
12	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
13	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
14	0.	0.	300000.	456906,62	43200.	800107.	1296281.	0.	1296281.	496175.
15	0.	0.	300000.	456906,62	43200.	800107.	1296281.	5156612.	6452894.	5652787.

DISCOUNTED PROFITABILITY MEASURES

DISCOUNT RATE	1.00./.	5.00./.	10.00./.	15.00./.
NET PRESENT VALUE	2402956,75	-374353,71	-2072734,41	-2803852,39

THE INTERNAL RATE OF RETURN IS APPROXIMATELY 4.46./.

ANNEX 1
Table 4

Accurate rate of return calculations and cost benefit variations

Table 5

YEAR	COSTS	BENEFITS
1	2959588.	0.
2	1978847.	1563145.
3	1853711.	1577368.
4	1917853.	1725759.
5	1429011.	1888458.
6	1239987.	1826115.
7	1253409.	1827258.
8	1025402.	1973568.
9	800107.	1672677.
10	800107.	1296281.
11	800107.	1296281.
12	800107.	1296281.
13	800107.	1296281.
14	800107.	1296281.
15	800107.	6450894.

THE INTERNAL RATE OF RETURN IS APPROXIMATELY = 11,628 %

Table 6

COST-VARIATING FACTOR = 1.20 BENEFIT-VARIATING FACTOR = 1.00

YEAR	VAR. COSTS	VAR.BENEFITS
1	3551506.	0.
2	2374616.	1563145.
3	2224453.	1577368.
4	2301424.	1725759.
5	1714813.	1888458.
6	1487984.	1826115.
7	1504091.	1827258.
8	1230482.	1973568.
9	960128.	1672677.
10	960128.	1296281.
11	960128.	1296281.
12	960128.	1296281.
13	960128.	1296281.
14	960128.	1296281.
15	960128.	6450894.

THE INTERNAL RATE OF RETURN IS APPROXIMATELY = 5,017 %

Table 7

COST-VARIATING FACTOR = 1.00 BENEFIT-VARIATING FACTOR = 1.20

YEAR	VAR. COSTS	VAR.BENEFITS
1	2959588.	0.
2	1978847.	1875774.
3	1853711.	1892842.
4	1917353.	2070911.
5	1429011.	2266150.
6	1239987.	2191338.
7	1253409.	2194710.
8	1025402.	2368282.
9	800107.	2007212.
10	800107.	1555537.
11	800107.	1555537.
12	800107.	1555537.
13	800107.	1555537.
14	800107.	1555537.
15	800107.	7741073.

THE INTERNAL RATE OF RETURN IS APPROXIMATELY = 19.468 %

Table 8

COST-VARIATING FACTOR = 1.00 BENEFIT-VARIATING FACTOR = 1.50

YEAR	VAR. COSTS	VAR.BENEFITS
1	2959588.	0.
2	1978847.	2344717.
3	1853711.	2366052.
4	1917853.	2588638.
5	1429011.	2832687.
6	1239987.	2739172.
7	1253409.	2740887.
8	1025402.	2960352.
9	800107.	2509015.
10	800107.	1944421.
11	800107.	1944421.
12	800107.	1944421.
13	800107.	1944421.
14	800107.	1944421.
15	800107.	9676341.

THE INTERNAL RATE OF RETURN IS APPROXIMATELY = 31,650 %

ANALYSIS OF ARI PROJECTIONS

REVENUE FROM LIVESTOCK SALES[a] ACCORDING TO AR I PROJECTIONS (000 sh)

PPAR/BP[illegible]P
Credit 132-TA

	Years						
	0	1	2	3	4	5	Full Operation
I. Without Purchased Steers							
Kitengule	900.6	830.4	971.6	1285.1	1267.8	1820.5	1885.1
Mkata[b]	680.4	680.4	374.4	12.0	9.6	9.6	9.1
West Kili.-Cattle	432.0	394.6	437.7	425.6	494.8	569.5	671.4
West Kili.-Sheep	79.2	79.2	81.6	90.3	97.9	105.5	105.5
Model 1	0[c]	0[d]	0[d]	314.8	397.9	452.7	1382.8
Model 2	0[c]	0[d]	0[d]	314.8	397.9	452.7	1382.8
Total	2092.2	1984.6	1865.3	2442.6	2665.9	3410.5	5436.7
II. With Purchased Steers							
Kitengule	900.6	830.4	1874.0	1893.1	1571.8	1820.5	1885.1
Mkata[b]	680.4	1883.6	1550.6	2418.4	3657.6	3696.0	3696.0
West Kili.-Cattle	432.0	394.6	785.1	425.6	494.8	569.5	671.4
West Kili.-Sheep	79.2	79.2	81.6	90.3	97.9	105.5	105.5
Model 1	0	0	0	314.8	1601.1	1668.7	1382.8
Model 2	0	0	0	314.8	1601.1	1668.7	1382.8
	2092.2	3187.8	4291.3	5457.0	9024.3	9528.9	9123.6

a) Including hides of fallen animals

b) Mkata was to become a steer fattening ranch

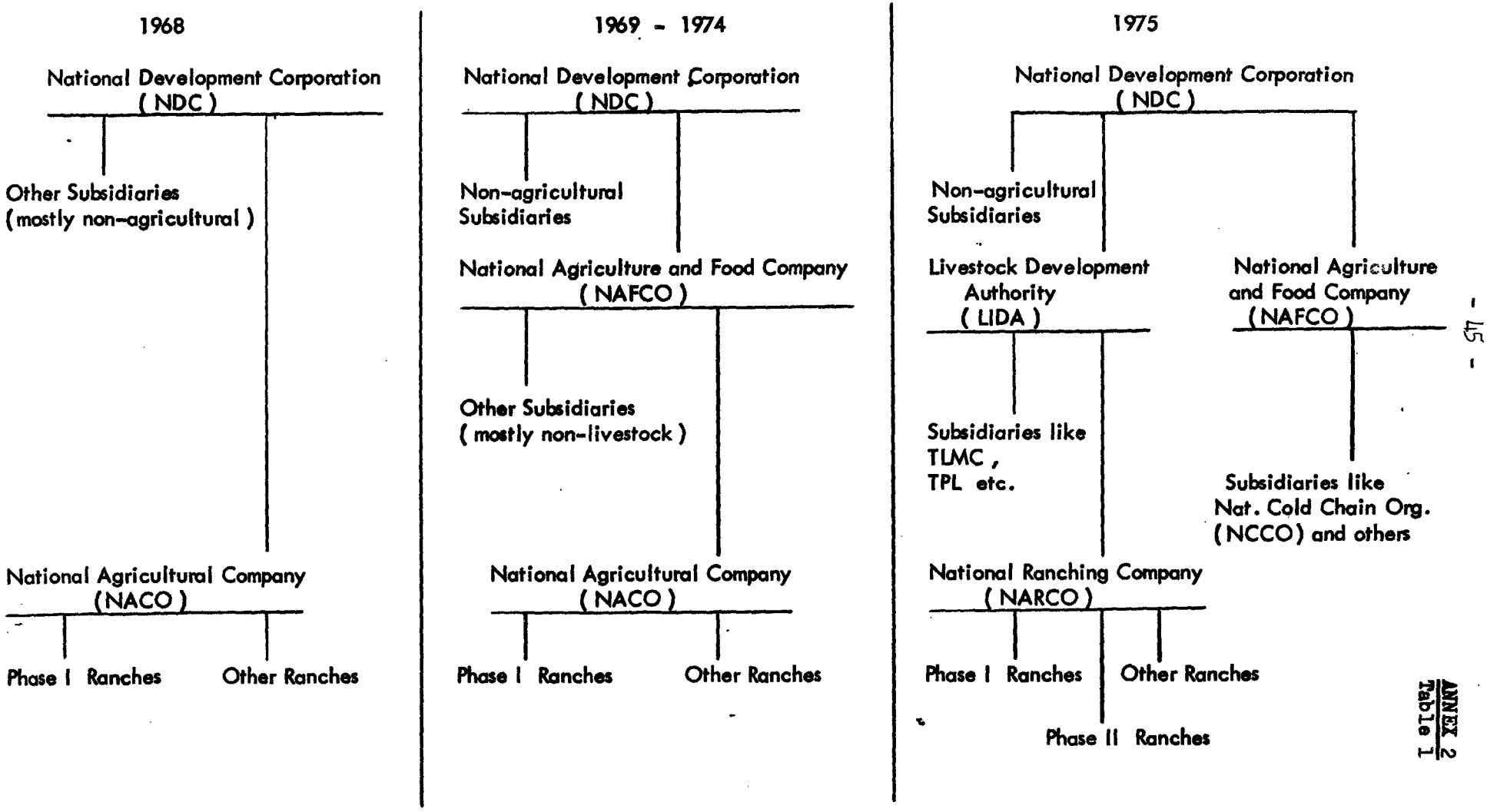
c) Production "without" is accounted for through an assumed purchase value of the herd that is brought on the ranch

d) A two-year delay - as happened in reality - is accounted for

Table 9

ORGANIZATION OF RANCHING DEVELOPMENT IN TANZANIA

1. Institutional Organization 1968 - 1975

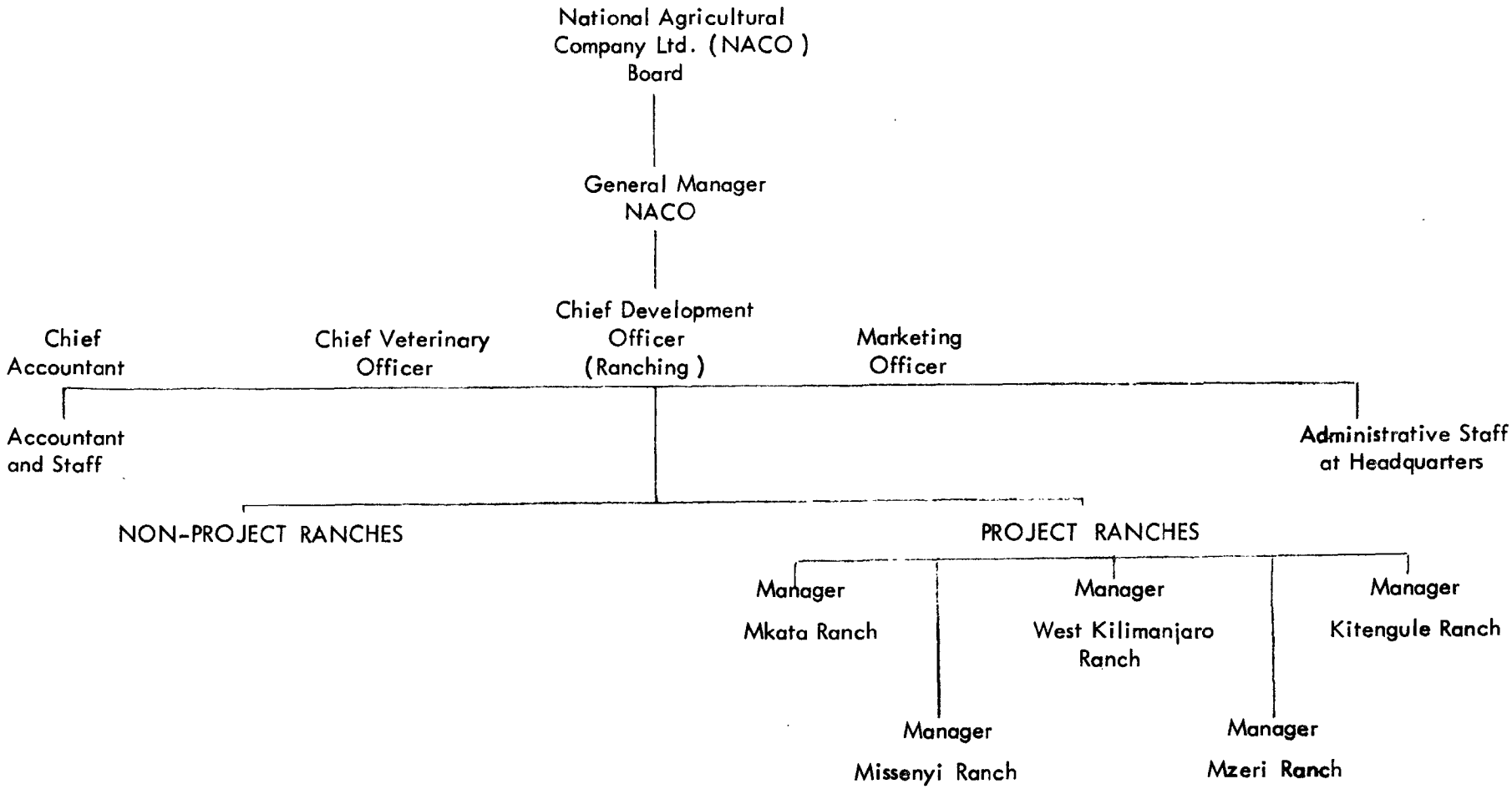


ANNEX 2
Table 1

ORGANIZATION OF RANCHING DEVELOPMENT - TANZANIA

PPAR/BRDP
Credit 132-TA

Organization Chart of the National Agricultural Company Ltd.



ANNEX 2
Table 2

Table 1 ESTIMATED AND ACTUAL SCHEDULE OF DISBURSEMENTS [a]

PPAR/BRDP
Credit 132-TA

IBRD/IDA Fiscal Year and Quarter	Accumulated Disbursements in Millions of U.S. Dollars Equivalent: Actual Total Disbursements 1	Appraisal Estimate 2	Actual Disbursements as a Percentage of Appraisal Estimate (1 : 2) x 100 3	Actual Disbursements as % of Total Credit
1969/70				
1st				
2nd				
3rd	0.05			
4th	0.05	0.34	15 %	4 %
1970/71				
1st	0.27	0.34	79 %	21 %
2nd	0.45	0.40	112 %	35 %
3rd	0.47	0.60	78 %	36 %
4th	0.56	0.82	68 %	43 %
1971/72				
1st	0.72	0.90	80 %	55 %
2nd	0.87	1.00	87 %	67 %
3rd	0.93	1.10	85 %	72 %
4th	0.99	1.20	83 %	76 %
1972/73				
1st	1.06	n.a.	-	82 %
2nd	1.06	1.30	82 %	82 %
3rd	1.13	-	-	87 %
4th	1.18	-	-	91 %
1973/74				
1st	1.21	-	-	93 %
2nd	1.24	-	-	95 %
3rd	1.30	-	-	100 %
4th				
Closing Date	1/30/74	12/31/72		

[a] According to Bank records

Table 2 DETAILS OF WORLD BANK AND GOVERNMENT FINANCES FOR PHASE I PROJECT

Fiscal Year	Particulars	World Bank Contribution (US$1,300,000)		Government Contribution		Total Finance Per Year
		T. Shs.	% of Total	T. Shs.	% of Total	T. Shs.
1970	Claims No : 1 to 7	2,803,784	73.5%	1,010,795	26.5%	3,814,579
1971	Claims No : 8 to 23 added	5,165,252	61.5%	3,231,795	38.5%	8,397,047
1972	Claims No : 24 to 32 added	7,566,611	61.2%	4,785,795	38.7%	12,352,406
1973	Claims No : 33 to 40 added	8,823,436	63.9%	4,970,795	36.0%	13,794,231
1974 b)	Claims No : 41 to 44 added	9,264,288	64.7%	5,050,795	35.2%	14,315,083
Total Phase I Project Budget	(T. Shs.)	9,285,640	65.0%	4,999,960	35.0%	14,285,600
Surplus/ (Deficit)	(T. Shs.)	(21 352)	0.3%	50,835	0.2%	29,483

a) According to NACO records

b) Up to December 1973

Table 3 EXPENDITURES UNDER THE PROJECT COMPARED WITH APPRAISAL FORECASTS
(Shs '000s)

PPAR/BRDP
Credit 132-TA

Item	Actual Expenditures — Ranches					Total Expenditure	Appraisal Forecast	Actual as Percent of Appraisal [a]
	Kitengule	West Kilimanjaro	Mkata	Missenyi	Mzeri			
DEVELOPMENT CATEGORY								
Physical Inputs	419.3	223.1	425.8	273.8	472.2	1,814.2	1,700.0	106.7
Water supplies	284.0	152.4	301.5	251.7	752.2	1,741.8	2,260.0	77.1
Buildings	353.9	71.1	167.0	373.6	349.3	1,314.9	900.0	146.1
Machinery	476.6	46.1	93.9	595.9	368.3	1,580.8	540.0	292.7
Land Survey	-	-	53.2	-	-	53.2	100.0	53.2
Total Physical Development	1,533.8	492.7	1,041.4	1,495.0	1,942.0	6,504.9	5,500.0	118.3
Livestock Purchases	1,585.6	255.3	1,100.2	1,498.4	891.4	5,330.9	6,140.0	86.8
Total Ranch Development	3,119.4	748.-	2,141.6	2,993.4	2,833.4	11,835.8	11,640.0	101.7
Technical Services & Training						2,047.9	1,770.0	115.7
Other/Contingencies						208.8	1,174.0	17.8
TOTAL [b]						14,092.5	14,584.0	96.6

[a] The figures shown for actual expenditure are not strictly comparable with those shown for "Appraisal". The amount available for some items of expenditure was higher than the appraisal figure because most of the amount provided at appraisal for contingencies was subsequently re-allocated to particular items.

[b] These data are taken from NACO's Annual/Completion Report dated July 1974. Totals differ slightly from Table 2 and the difference has not been reconciled.

NACO CATTLE BOOK VALUES [a]
(T Sh per animal)

	All Ranches	Kitengule	Mkata	West Kilimanjaro	Missenyi	Mzeri
Bulls - 3 years & over	-	1000	600	700	1000	800
- 2 years	-	600	400	400	400	600
- 1 year	200	200	200	200	200	200
- Weaners	110	110	110	110	110	110
Cows - cull	-					
- Breeding	-	320	300	360	300	280
Heifers - 3 years mated	-					
- 3 years unmated	-					
2 years mated	230	230	230	230	230	230
2 years unmated	230	230	230	230	230	230
1 year	160	160	160	160	160	160
- Weaners	110	110	110	110	110	110
Calves	60	60	60	60	60	60
Steers R/B - 4 years	-					
- 3 years		320	320	360	320	320
2 years	230	230	230	230	230	230
1 year	160	160	160	160	160	160
Weaners	110	110	110	110	110	110
Mature Purchased Steers	280	280	280	280	280	280
Immature Purchased Steers	260	260	260	260	260	260
Newarrival Purchased Steers	250	250	250	250	250	250
Purchased Heifers	260	260	260	260	260	260

a) In use since July 1972, differences in the valuation system used before that date can be neglected. For a comparison, actual average selling prices in 1973 were for bulls T.Sh 617, cows T.Sh 437, heifers T.Sh 221, ranch-bred steers T.Sh 731, and purchased steers T.Sh 426. These prices must be compared to the most highly valued type of animal in the respective category of the book value system.

CATTLE HERDS ON THE PROJECT RANCHES 1973

Herd Composition, Year End, Nos	Kitengule 1973 (Year 5) Appraisal Estimate	Kitengule 1973 (Year 5) Under Project	Comparison %	Mkata 1973 (Year 4) NACO Estimate	Mkata 1973 (Year 4) Under Project	% of Estimate	West Kili. (cattle only) 1973 (Year 5) Appraisal Est.	West Kili. (cattle only) 1973 (Year 5) Under Project	Comparison %
Breeding Cows	6,000	5,851	97.5	3,000	2,948	98.3	2,200	2,070	94.1
Breeding Bulls	200	1,420	710.0	137	205	153.0	75	407	542.7
Weaners 0 - 1 yr.	4,500	3,657	81.3	2,250	3,235	143.0	1,650	1,519	92.1
Heifers 1 - 2 yrs.	2,250	689	30.3	480	849	176.9	825	630	76.4
Heifers 2 - 3 yrs.	2,304	1,136	49.3	437	1,464	335.0	726	653	89.9
Heifers 3 - 4 yrs.	-	2,879	NC	-	-	-	-	728	NC
Steers 1 - 2 yrs.	2,250	1,270	56.4	1,125	1,296	115.2	825	-	NC
Steers 2 - 3 yrs.	2,304	1,928	83.7	1,668	1,493	89.5	726	-	NC
Steers 3 yrs and over	1,805	1,487	82.4	967	382	39.5	615	1	NC
Purchased Steers	-	3	NC	2,866	2,286	79.8	-	-	-
Total	21,613	20,320	94.0	12,930	14,158	109.5	7,642	6,008	78.6
Animal Units	17,113	16,663	97.4	9,977 a)	10,923	72.0	5,992	4,489	74.9

Herd Composition, Year End, Nos	Missenyi 1973 (Year 3) NACO Estimate	Missenyi 1973 (Year 3) Under Project	Comparison %	Mzeri 1973 (Year 3) NACO Estimate	Mzeri 1973 (Year 3) Under Project	Comparison %	Appraisal Model Year 3
Breeding Cows	5,724	4,556	79.6	6,294	5,583	88.7	3,509
Breeding Bulls	215	195	90.7	317	290	91.5	117
Weaners	4,006	4,607	115.0	4,091	4,255	104.0	2,456
Heifers 1 - 2 yrs.	1,111	856	77.0	1,373	748	54.5	884
Heifers 2 - 3 yrs.	1,428	1,088	76.2	1,630	1,173	72.0	428
Heifers 3 - 4 yrs.	-	2,515	NC	-	613	NC	-
Steers 1 - 2 yrs.	1,111	740	66.6	1,253	500	39.9	884
Steers 2 - 3 yrs.	428	669	156.3	-	-	-	428
Steers 3 yrs and over	-	65	-	-	-	-	402
Purchased Steers	4,000	3,832	95.8	333	295	88.6	4,000
Total	18,023	19,123	106.1	15,291	13,457	88.0	13,108
Animal Units	14,017	14,516	102.9	11,200	9,202	82.2	

a) Original figure was 15,180 which does not correspond with the figure for total heads. Accepting this latter figure, the average conversion rate underlying these figures in the other ranches was applied to arrive at the animal units.

FINANCIAL PERFORMANCE

PPAR / BRDP
Credit 132-TA

Table 1 TRADING AND PROFIT AND LOSS ACCOUNTS OF KITENGULE RANCH FOR THE YEAR ENDED 31.12.1973

	Cattle Nos.	Amount Tz. Shs.		Cattle Nos.	Amount Tz. Shs.
Opening Stock (As at 1.1.73)	20,056	4,945,100	BY Sales	1,176	442,085
" Births	3,500	-	" Deaths & Losses	1,095	-
" Transfers IN	122	93,600	" Transfers OUT	1,050	781,293
" Livestock Husbandry	-	579,311	" Closing Stock (as at 31.12.1973)	20,357	5,045,810
" Motor Transport Operating	-	230,557			
" Tractor Operating	-	136,775	" Sundry Receipts	-	11,626
" Water supply	-	36,259	" Loss during the year	-	537,146
" Management Fees	-	498,000			
" Maintenance	-	74,219			
" Other overhead expenditure	-	79,553			
" Salaries & Allowances	-	179,822			
	23,678	6,853,196			
Less : Charges to capital	-	35,239			
TOTAL	23,678	6,817,957	TOTAL	23,678	6,817,957

Annex
Table 1
(Kitengule)

Table 2 TRADING AND PROFIT AND LOSS ACCOUNTS OF MKATA RANCH FOR THE YEAR ENDED 31.12.1973

		Cattle Nos.	Amount T. Shs.			Cattle Nos.	Amount T. Shs.
To	Opening stock (As at 1.1.1973)	10,752	2,472,980	By	Sales	2,701	1,823,807
"	Births	3,045	-	"	Deaths & Losses	782	-
"	Purchases	3,338	881,160	"	Transfers Out	454	135,945
"	Transfers In	960	481,723	"	Closing Stock (As at 31.12.73)	14,158	3,022,510
"	Livestock Husbandry	-	460,757				
"	Motor Transport Operating	-	121,287	"	Milk Receipts	-	6,439
"	Tractor Operating	-	74,842	"	Loss during the year	-	319,378
"	Water Supply	-	79,730				
"	Management Fees	-	401,000				
"	Maintenance	-	133,044				
"	Other overhead Expenditure	-	84,879				
"	Salaries & Allowances	-	138,985				
		18,095	5,330,387				
Less :	Charges to Capital	-	22,308				
	TOTAL	18,095	5,308,079		TOTAL	18,095	5,308,079

ANNEX 6
Table 2
(Mkata)

Table 3 TRADING AND PROFIT AND LOSS ACCOUNTS OF WEST KILIMANJARO FOR THE YEAR ENDED 31.12.1973

	Sheep Nos.	Cattle Nos.	Total Nos.	Amount T. Shs.
To opening Stock (As at 1.1.1973)	6478	6424	12902	1989575
To Births	2012	1580	3592	-
" Livestock Husbandry	-	-	-	336576
" Motor Transport Operating	-	-	-	115778
" Tractor Operating	-	-	-	50699
" Water Supply	-	-	-	74569
" Management Fees	-	-	-	182000
" Maintenance	-	-	-	78322
" Other overhead Expenditure	-	-	-	43269
" Salary & Allowance	-	-	-	125858
	8490	8004	16494	2996646
Less: Charges to Capital	-	-	-	9887
	8490	8004	16494	2986759
Profit during the year	-	-	-	189280
TOTAL	8490	8004	16494	3176039

	Sheep Nos.	Cattle Nos.	Total Nos.	Amount T. Shs.
By Sale	582	224	806	524095
" Deaths & Losses	546	145	991	-
" Transfers Out	10	1627	1637	748920
" Closing Stock (As at 31.12.73)	7052	6008	13060	1892705
" Milk Sales	-	-	-	3295
" Sundry Receipts	-	-	-	7024
TOTAL	8190 [a]	8004	16494	3176039

a) There remains an unexplained discrepancy of 300 head of sheep.

Table 4 TRADING AND PROFIT AND LOSS ACCOUNTS OF MISSENYI RANCH FOR THE YEAR ENDED 31.12.1973

	Cattle Nos.	Amount T. Shs.		Cattle Nos.	Amount T. Shs.
To Opening Stock (As at 1.1.73)	15,584	3,723,040	By Sales	1306	621,903
" Births	4,011	-	" Deaths & Losses	1086	-
" Purchases	1,858	515,935	" Closing Stock (As at 31.12.73)	19123	4,209,460
" Transfers In	62	62,000	" Milk Receipts	-	2,810
" Livestock Husbandry	-	513,516	" Loss during the year	-	1,039,092
" Motor Transport Operating	-	141,906			
" Tractor Operating	-	128,730			
" Water Supply	-	69,182			
" Management Fees	-	394,000			
" Maintenance	-	148,229			
" Other overhead Expenditure	-	115,708			
" Salaries & Allowances	-	91,732			
	21,515	5,903,979			
Less: Charges to Capital	-	30,714			
TOTAL	21,515	5,873,265	TOTAL	21,515	5,873,265

ANNEX 6
Table 4
(Missenyi)

Table 5 TRADING AND PROFIT AND LOSS ACCOUNTS OF MZERI RANCH
FOR THE YEAR ENDED 31.12.1973

	Cattle Nos.	Amounts T. Shs.		Cattle Nos.	Amounts T. Shs.
To Opening Stock (As at 1.1.73)	11,035	2,597,800	By Sales	485	192,837
" Births	3,576	-	" Deaths & Losses	1,407	-
" Transfers In	748	308,785	" Transfers Out	10	6,000
" Livestock Husbandry	-	401,823	" Closing Stock (As at 31.12.73)	13,457	2,881,630
" Motor Transport Operating	-	137,468			
" Tractor Operating	-	87,408	" Sundry Receipts	-	5,195
" Water Supply	-	100,355	" Loss during the year	-	1,184,576
" Management Fees	-	347,000			
" Maintenance	-	71,526			
" Other Overhead Expenditure	-	138,306			
" Salaries & Allowances	-	94,843			
	15,359	4,285,314			
Less: Charges to Capital	-	15,076			
TOTAL	15,359	4,270,238	TOTAL	15,359	4,270,238

ANNEX 6
Table 5
(Mzeri)

ANNEX 6
Table 6
PPAR/BRDP
Credit 132-TA

Table 6 NATIONAL AGRICULTURAL COMPANY Ltd.
SIMPLIFIED VERSION OF ACCOUNTS (T sh 000)

Balance Sheets

	Dec 31 68	Dec 31 69	Dec 31 70	Dec 31 71	Dec 31 72	Dec 31 73
		not available				
Assets						
Fixed, net of deprec.	6264		11700	15900	18610	20148
Livestock	13895		18800	21600	25065	28155
Current	2031		1700	2900	2951	6124
Total	22190		32200	40400	46626	54427
Liabilities						
Share Cap. + Reserves	21431[b]		21200	24300	31157	33118
less acc. losses	305[c]		3100	5800	10758	15715
= net shareholders funds	21125		18100	18500	20399	17403
Long term loans						
- Treasury Fund	-		-	-	3774	3798
- IDA	-		3700	5200	7391	8320
- NAFCO	-		5200	6500	5259	5259
Short Term Loans (NAFCO)	-		2100	1310	1764	6876
Current Liabilities	1064		1200	1300	1041	340
Bank Overdraft	-		1900	7600	6638	12431
Total	22190		32200	40400	46626	54427

Profit and Loss Accounts

Sales of cattle	7001		n.a.	9600	9735	14264
less book value	4900		n.a.	6600[a]	6109	8240
Gross profit	2101		2200	3000	3626	6024
Milk, Wool, Sundry	418		500	600	554	1714
Livestock Re-grading plus births minus deaths and losses	2491		1700	3000	4466	2643
Total income	5010		4400	6600	8646	10381
Loss for the year	29		2300	2700	4640	5231
	5039		6700	9300	13286	15612
Livestock Husbandry	1533		n.a.	n.a.	3850	4534
Gen. op. expenses[d]	3161		n.a.	n.a.	9612	11085
Planning	199		n.a.	n.a.		
ADS	146					
Total	5039		6700[e]	9300[f]	13462	15619

[a] The actual 1971 account shows a deductable book value of 6,8 million yielding a gross profit of 2.3 million to which is added 0.2 million as profit from internal transfers. This is conceptually doubtful, and was accounted for by adjusting bookvalue

[b] Share capital issued and fully paid Tsh 21 170 000

[c] Including Tsh 11 200 pre-incorporation loss

[d] Excluding charges to capital and allocation to formation and development

[e] of which depreciation 1200

[f] of which depreciation 1600

ECONOMIC COST-BENEFIT ANALYSIS

Annex 7
PPAR/BRDP
Credit 132-TA

I. Benefits in the Past

	69	70	71	72	73
Animals Sold for Beef [a], [b]	n.a.	5302	8098	9679	5991
Beef Equivalents Sold (ooo sht)	400 [c]	795	1215	1452	899

[a] Including sheep converted at the ratio 1 : 6

[b] Assuming 300 lb cold dressed weight per animal sold

[c] Assumption

The accounting files of NACO were checked for transfers between the project ranches and other NACO ranches. For the first half of the project period there were net transfers in, then net transfers out. The overall value of transfers in (calculated at NACO book values) is almost identical with the value of transfers out. It ist therefore assumed that there are neither net costs nor net benefits to be accounted for on account of transfers.
The benefit stream over the five project years can, however, justifiably be smoothened out:

	69	70	71	72	73
Production of Beef Equivalents (mod.) (sht)	317	635	952	1270	1587
Value at sh 1.2/lb cdw (000 sh)	761	1524	2285	3048	3808
" " 2.0 " " "	1268	2540	3808	5080	6348
" " 4.0 " " "	2536	5080	7616	10160	12616

The AR I assumed an economic value of sh 1.2/lb cdw.

II. Costs in the Past

1. Opportunity Costs of Cattle

The initial herds on Mkata, West Kilimanjaro and Kitengule only are valued at sh 300 per animal unit.

	Initial Herd	
	Animal Units	Value (000 sh)
Kitengule	9319	2796
Mkata	11388	3416
West Kilimanjaro	4928	1478
Total	25635	7690

2. Development Costs

Development Costs for the five ranches were sh 14 million, including the costs of technical services. These services were essential for the development of the ranches and are rightly charged to the project in an economic cost-benefit analysis.
From the point of view of the national economy it is not the time of disbursement but the time of actual resource use which marks cost incidence.
The following schedule is assumed

	69	70	71	72	73
million sh	1	2	3	4	4

These costs are net of taxes and duties and approximate economic costs.

3. On Ranch Operating Costs

3.1 Variable Costs

A figure of sh 40 per animal unit appears to be a conservative estimate. Total animal units at the beginning of development were 25635 (say 25000). Full stocking of the ranches with 60000 animal units is assumed to be achieved by year 7 with a linear increase in between.

	68	69	70	71	72	73	74	75
	0	1	2	3	4	5	6	7
Animal Units (000)	25	30	35	40	45	50	55	60
Variable Costs (000 sh)	1000	1200	1400	1600	1800	2000	2200	2400

3.2 Fixed Costs

Fixed on-ranch operating costs in 1973 were in the order of sh 2.7 million (compare Annex 8) for the five project ranches, i.e. sh 45/AU it related to the carrying capacity. This figure is assumed to include replacement costs in the future.

4. Overhead

Overhead costs allocated to the five project ranches were in 1973 sh. 3.3 million (compare Annex 8); if interest payments are deducted sh. 2.2 million or sh 440000 per ranch p.a. They are assumed to have increased from sh 110000 per ranch in year 1 to the present level.

III. Cost-Benefit Projection

All costs are assumed to remain constant from year 5 (variable costs from year 7) on.

Benefits are assumed to maintain their rate of increase until year 7 and to stay constant from then on. With respect to prices three alternative assumptions are made:

- the assumption of the AR I is taken up (sh 1.2/lb cdw)
- a price of sh 2.0/lb is assumed to represent the economic value of beef
- the economic value of beef is assumed to increase from sh 2.0/lb in year 1 to sh 3.0/lb in year 6

In all alternatives the residual value of the herd is calculated at sh 500 per animal unit and entered as a benefit in year 15 (no sales are included in that year).

ECONOMIC COST-BENEFIT FLOW

000 sh

	1	2	3	4	5	6	7	8	9	10	11-14	15
Opportunity Costs of Cattle	7690											
Development Costs	1000	2000	3000	4000	4000							
Variable Production Costs	1200	1400	1600	1800	2000	2200	2400	2400	2400	2400	2400	2400
Non-Running Operating Costs	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700
Overhead	550	963	1375	1788	2200	2200	2200	2200	2200	2200	2200	2200
Total Costs	13140	7063	8675	10288	10900	7100	7300	7300	7300	7300	7300	7300
Value of Beef Production												
I at sh 1.2/lb cdw	761	1524	2285	3048	3808	4568	5300	5300	5300	5300	5300	30000 a)
II at sh 2.0/lb cdw	1268	2540	3808	5080	6348	7616	8900	8900	8900	8900	8900	30000 a)
III at sh 2.0 increasing to sh 3.0 by year 6	1268	2794	4570	6604	8887	11424	13350	13350	13350	13350	13350	30000 a)

Internal Rate of Return: Run I Negative
Run II Below 2%
Run III 13%

a) Residual Value of the Herd

PERFORMANCE ANALYSIS
ANALYSIS OF EXPENDITURES
(.000 sh)

Salaries and Allowances	104	103	95	65	67	434	7.2
Administration	75	36	31	27	27	196	3.3
Other Overheads and Unallocated [b]	101	118	55	142	162	578	9.6
Subtotal 1	701	553	414	626	527	2821	47.0
less Charges to Capital	35	22	10	31	15	113	-
Subtotal 2	666	531	404	595	512	2708	45.1
Headquarter Expenses							
Management Fees [c]	498	401	182	394	347	1822	30.4
Management Fees (./. of total)	14.2	11.4	5.2	11.2	9.9		
Interest Charges [d]	285	229	104	225	199	1042	17.4
Subtotal 3	783	630	286	619	546	2864	47.7
less Allocation to Formation and Development	17	14	6	14	12	63	-
Subtotal 4	766	616	280	605	534	2801	46.7
Additional HQ Loss [d]	131	105	48	104	92	480	8.0
Subtotal 5	897	721	328	709	626	3281	54.7
Carrying Capacity (ooo AU)	16.6	12.0	7.3	14.9	10.2	60.0	-
Subtotal 2/AU	40.1	44.3	55.3	39.9	50.2	-	45.1
Subtotal 2+Man.Fees/AU	70.1	77.7	80.3	66.4	84.2	-	75.5
Subtotal 2+ Subtotal 4/AU	86.3	95.6	93.7	80.5	102.5	-	91.8
Subtotal 2+ Subtotal 5/AU	94.2	104.3	100.3	87.5	111.6	-	99.8

a) From NACO Profit and Loss Accounts 1973; water supply costs excluded since regarded as variable costs

b) Not unambiguously clear whether this item can be considered on ranch costs or - in part - also as HQ-expenses

c) Headquarter expenses allocated according to a key agreed upon by IDA; the total for all NACO ranches falls short of covering all HQ-expenses by sh 925000 which is termed additional HQ loss

d) Distributed accordings to the key mentioned in c)

ANNEX 8
Table B

REVENUE FROM ACTUAL SALES AND INCOME OF THE PHASE I-RANCHES

PPAR/BRDP
Credit 132-TA

000 sh

	69	70	71	72	73
I. Without Purchased Steers					
Kitengule	n.a.	126	697	1222	497
Mkata	n.a.	471	575	405	1278
West Kili.-Cattle	n.a.	390	163	504	94
West Kili.-Sheep	n.a.	96	101	101	101 [b]
Missenyi	n.a.	2	4 [a]	11	176
Mzeri	n.a.	5	15	36	146
Total	-	1090	1555	2279	2292
II. Purchased Steers					
Kitengule	n.a.	368	322	128	-
Mkata	n.a.	580	1088	1887	229
West Kili.-Cattle	n.a.	161	185	1	1
Missenyi	n.a.	61	44	227	395
Mzeri	n.a.	-	-	1	27
Total	-	1170	1639	2244	652
III. Net Transfers Out [c]					
Kitengule	-560	+1153	-865	+1498	+257
Mkata	+507	+ 667	+154	- 94	- 92
West Kili.-Cattle	+ 31	+ 93	+ 7	+ 172	+504
Missenyi	-	-1774	+809	-1442	- 62
Mzeri	-	- 930	-311	- 127	-203
Total	- 22	- 791	-206	+ 7	+404
IV. Income [d]					
Kitengule	n.a.	1054	1812	1903	1918
Mkata	n.a.	915	1217	1389	1355
West Kilimanjaro	n.a.	539	700	1003	1242
Missenyi	n.a.	24	351	515	799
Mzeri	n.a.	18	142	430	394
Total	-	2550	4222	5240	5708

[a] No price give; assumed 300 sh/head

[b] Incoherent information for 72 and 73; therefore income assumed as in 1971

[c] To other NACO ranches at book values; a negative figure means that there has been a net transfer "in"

[d] Includes changes in herd value at book values and net value of transfers at book values

PERFORMANCE ANALYSIS

Table C

OFFTAKE OF RANCH-BRED ANIMALS IN YEAR 5 ACCORDING to AR I a)

PPAR/BRDP
Credit 132-TA

	No of Ranch-bred Animals at Hand	Sales of Ranch-bred Animals	Offtake
Kitengule	21613	3769	17.4 %
Mkata	-	-	-
West Kilimanjaro	7642	1210	15.8 %
Model I	9108	949	10.4 %
Model II	9108	949	10.4 %
Total/Average	47471	6877	14.5 %

a) Taking year 3 for the model ranches

Table D

ACTUAL OFFTAKE FROM THE PHASE I-RANCHES IN 1973

	No of Cattle a) at Hand Mean Year End 72 and 73	No of Ranch-bred Cattle Sold During 1973 b)	Net Transfers Out During 1973 a) c)
Kitengule	20204	1175	920
Mkata	11094	2069	-505
West Kilimanjaro	6216	859	968 d)
Missenyi	13885	364	- 62
Mzeri	12213	418	-738
Total/Average	63612	4885	1242

The average offtake for Kitengule, Mkata and West Kilimanjaro is 14.6 %.

a) Excluding purchased steers for fattening

b) Following the accounting files not the annual reports

c) Compiled from accounting files

d) Deducting the 659 R/B steers which do not figure in the annual report as double counting; otherwise the offtake works out at 40.0 %

ANNEX 8

PERFORMANCE ANALYSIS

Table E

ANALYSIS OF SALES FROM THE PHASE-I RANCHES DURING 1973 [a]

PPAR/BRDP
Credit 132-TA

Category	No	Proceeds sh	Average Price per Head sh	Estimated Price per Head sh
Bulls	99	61,042	617	700
Cows	2364	1,032,413	437	440
Heifers	59	13,050	221	430
Calves	5	492	98	-
R/B Steers	2357	1,723,785	731	500
Purchased Steers	1642	699,844	426	320

[a] Compiled from accounting files

Table F

SALES OF PHASE-I RANCHES 1973
ACCORDING TO NACO ANNUAL REPORT (AR)
AND NACO ACCOUNTING FILES (AF) [a]

	Number		Value 000 sh		Average Price	
	AR	AF	AR	AF	AR	AF
I. Cattle without Purchased Steers						
Kitengule	1176	1175	497	442	423	376
Mkata	2071	2069	1278	1597	617	772
West Kili.-Cattle [b]	220	859	94	450	427	524
Missenyi	363	364	176	176	485	483
Mzeri	418	418	146	165	349	395
Total/Average	4248	4885	2191	2830	540	579
II. Purchased Steers Alone						
Kitengule	0	1	-	-	-	144
Mkata	630	631	229	226	364	359
West Kili.-Cattle	4	-	1	-	131	-
Missenyi	943	943	395	446	419	473
Mzeri	67	67	27	27	409	409
Total/Average	1644	1642	652	699	400	426

[a] Various rounding errors contained in the table

[b] The AR left out some 650 ranchbred steers sold at an average price of sh 551 for sh 363283 altogether

Sensitivity analysis
Production coefficients

For definitions see Annex 1

TABLE 1 HERD DEVELOPMENT

YEAR	COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	DEFICIT
1	1500.3	451.6	450.3	1022.4	0.0	451.6	450.3	423.0	4391.9	45.0	9786.3	8883.1	3116.9
2	2897.7	945.4	429.0	1377.7	0.0	945.4	429.0	427.7	4189.5	86.9	11728.2	9837.5	2162.5
3	3840.8	1336.6	898.1	407.5	0.0	1336.6	898.1	407.5	4189.9	115.2	13430.4	10757.2	1242.8
4	3672.2	1373.4	1283.1	862.2	0.0	1373.4	1283.1	862.2	4215.4	110.2	15035.1	12288.3	-288.3
5	3983.5	1489.8	1318.5	1231.8	0.0	1489.8	1318.5	1231.8	3690.5	119.5	15873.7	12894.0	-894.0
6	4336.6	1621.9	1430.2	1265.7	0.0	1621.9	1430.2	1265.7	3083.8	130.1	16186.2	12942.4	-942.4
7	4336.6	1621.9	1557.0	1373.0	0.0	1621.9	1557.0	1373.0	3116.4	130.1	16687.0	13443.2	-1443.2
8	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	2259.4	130.1	16073.4	12829.6	-829.6
9	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
10	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
11	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
12	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
13	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
14	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6
15	4336.6	1621.9	1557.0	1494.7	0.0	1621.9	1557.0	1494.7	1416.2	130.1	15230.2	11986.4	13.6

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
28.47./.	10.65./.	10.22./.	9.81./.	0.00./.	10.65./.	10.22./.	9.81./.	9.30./.	0.85./.

THE AVERAGE GROWTH RATE OF THE HERD IS APPROXIMATELY 1.89./.

TABLE 2 LIST OF COSTS AND BENEFITS

YEAR	OPPORTUNITY COSTS	INVESTMENT/ REPLACEMENT COSTS	FIXED OPERATING COSTS	VARIABLE OPERATING COSTS	LIVESTOCK PURCHASE COSTS	TOTAL COSTS	BENEFITS LIVESTOCK SALES	OTHER BENEFITS	TOTAL BENEFITS	NET BENEFITS
1	2186000.	330000.	150000.	293588.46	0.	2959588.	0.	0.	0.	-2959588.
2	0.	330000.	225000.	351847.50	1072000.	1978847.	1563145.	0.	1563145.	-415703.
3	0.	330000.	300000.	402910.60	820800.	1853711.	1577368.	0.	1577368.	-276343.
4	0.	330000.	300000.	451052.96	836800.	1917853.	1725759.	0.	1725759.	-192094.
5	0.	0.	300000.	476210.70	652800.	1429011.	1888458.	0.	1888458.	459448.
6	0.	0.	300000.	485586.65	454400.	1239987.	1862115.	0.	1862115.	622129.
7	0.	0.	300000.	500608.91	452800.	1253409.	1827258.	0.	1827258.	573849.
8	0.	0.	300000.	482201.60	243200.	1025402.	1973568.	0.	1973568.	948167.
9	0.	0.	300000.	456906.62	43200.	800107.	1672677.	0.	1672677.	872570.
10	0.	0.	300000.	456906.62	43200.	800107.	1296281.	0.	1296281.	496175.
11	0.	0.	300000.	456906.62	43200.	800107.	1296281.	0.	1296281.	496175.
12	0.	0.	300000.	456906.62	43200.	800107.	1296281.	0.	1296281.	496175.
13	0.	0.	300000.	456906.62	43200.	800107.	1296281.	0.	1296281.	496175.
14	0.	0.	300000.	456906.62	43200.	800107.	1296281.	0.	1296281.	496175.
15	0.	0.	300000.	456906.62	43200.	800107.	1296281.	5154612.	6450894.	5650787.

DISCOUNTED PROFITABILITY MEASURES

DISCOUNT RATE	1.00./.	5.00./.	10.00./.	15.00./.
NET PRESENT VALUE	6510461.30	2946675.45	520834.71	-741047.52

TABLE 3 HERD DEVELOPMENT

YEAR	COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	DEFICIT
1	1500.3	451.6	450.3	1622.4	0.0	451.6	450.3	423.0	4391.9	45.0	9786.3	8883.1	3116.9
2	2897.7	882.3	429.0	1577.7	0.0	882.3	429.0	427.7	4189.5	86.9	11602.2	9837.5	2162.5
3	3840.8	1169.5	838.2	407.5	0.0	1169.5	838.2	407.5	4189.9	115.2	12976.5	10637.4	1362.6
4	3672.2	1131.0	1122.7	804.7	0.0	1131.0	1122.7	804.7	4215.4	110.2	14114.6	11852.6	147.4
5	3926.0	1209.2	1085.8	1077.8	0.0	1209.2	1085.8	1077.8	3835.5	117.8	14425.0	12006.6	-6.6
6	4415.0	1359.8	1160.9	1042.4	0.0	1359.8	1160.9	1042.4	2735.6	132.4	14609.1	11889.5	110.5
7	4795.1	1476.9	1305.4	1114.4	0.0	1476.9	1305.4	1114.4	2900.0	143.9	15632.3	12678.5	-678.5
8	4878.4	1502.6	1417.8	1253.2	0.0	1502.6	1417.8	1253.2	2008.8	146.4	15380.7	12375.6	-375.6
9	4878.4	1502.6	1442.5	1361.1	0.0	1502.6	1442.5	1361.1	1182.0	146.4	14819.0	11813.9	186.1
10	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1285.6	146.4	14969.9	11964.8	35.2
11	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1308.3	146.4	14992.6	11987.5	12.5
12	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1308.3	146.4	14992.6	11987.5	12.5
13	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1308.3	146.4	14992.6	11987.5	12.5
14	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1308.3	146.4	14992.6	11987.5	12.5
15	4878.4	1502.6	1442.5	1384.8	0.0	1502.6	1442.5	1384.8	1308.3	146.4	14992.6	11987.5	12.5

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
32.54./.	10.02./.	9.62./.	9.24./.	0.00./.	10.02./.	9.62./.	9.24./.	8.73./.	0.98./.

THE AVERAGE GROWTH RATE OF THE HERD IS APPROXIMATELY 1.89./.

TABLE 4 LIST OF COSTS AND BENEFITS

YEAR	OPPORTUNITY COSTS	INVESTMENT/ REPLACEMENT COSTS	FIXED OPERATING COSTS	VARIABLE OPERATING COSTS	LIVESTOCK PURCHASE COSTS	TOTAL COSTS	BENEFITS LIVESTOCK SALES	OTHER BENEFITS	TOTAL BENEFITS	NET BENEFITS
1	2186000.	330000.	150000.	293588.46	0.	2959588.	0.	0.	0.	-2959588.
2	0.	330000.	225000.	348066.06	1072380.	1975066.	1563145.	0.	1563145.	-411921.
3	0.	330000.	300000.	389293.88	820980.	1840094.	1577369.	0.	1577368.	-262726.
4	0.	330000.	300000.	425439.04	836880.	1890239.	1725759.	0.	1725759.	-164480.
5	0.	0.	300000.	432751.14	652880.	1385551.	1888458.	0.	1888458.	502907.
6	0.	0.	300000.	434272.56	454400.	1192673.	1719346.	0.	1719346.	526673.
7	0.	0.	300000.	468960.47	452880.	1221769.	1491935.	0.	1491935.	270165.
8	0.	0.	300000.	461419.78	243200.	1004620.	1693151.	0.	1693151.	688531.
9	0.	0.	300000.	464569.82	43200.	787769.	1433630.	0.	1433630.	645861.
10	0.	0.	300000.	449995.89	43200.	792206.	1112529.	0.	1112529.	320233.
11	0.	0.	300000.	449777.22	43200.	792977.	1174492.	0.	1174492.	381515.
12	0.	0.	300000.	449777.22	43200.	792977.	1185847.	0.	1185847.	392870.
13	0.	0.	300000.	449777.22	43200.	792977.	1185847.	0.	1185847.	392870.
14	0.	0.	300000.	449777.22	43200.	792977.	1185847.	0.	1185847.	392870.
15	0.	0.	300000.	449777.22	43200.	792977.	1185847.	5214002.	6399850.	5606872.

DISCOUNTED PROFITABILITY MEASURES

DISCOUNT RATE	1.00./.	5.00./.	10.00./.	15.00./.
NET PRESENT VALUE	5212343.11	2049354.07	-55529.50	-1120824.45

THE INTERNAL RATE OF RETURN IS APPROXIMATELY 9.87./.

IBRD 132 TA PHASE 1 BREEDING/FATTENING RANCH,80000 ACRES,12000 ANIMAL UNITS
OPP,COSTS YEAR 1 & VALUE OF INITIAL HERD & PURCHASES YEAR 1
R 2B ,CALRTE 0,70,CULLING 0,05,SEEAGE 5,0

PPAR/BRDP
CREDIT 132-TA

TABLE 5 HERD DEVELOPMENT

YEAR	COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB	TOTAN	TOTSU	DEFICIT
1	1623.8	488.8	450.3	1022.4	0.0	488.8	450.3	423.0	4217.1	48.7	9813.1	8835.6	3164.4
2	3116.3	948.9	464.3	1377.7	0.0	948.9	464.3	427.7	7947.9	93.5	15789.8	13891.9	-1891.9
3	4244.8	1292.5	901.5	441.1	0.0	1292.5	901.5	441.1	7951.6	127.3	17594.0	15008.9	-3008.9
4	4346.3	1338.7	1240.8	865.4	0.0	1338.7	1240.8	865.4	8152.4	130.4	19519.0	16841.6	-4841.6
5	4429.2	1364.2	1285.1	1191.2	0.0	1364.2	1285.1	1191.2	7092.8	132.9	19335.9	16607.5	-4607.5
6	4429.2	1364.2	1309.6	1233.7	0.0	1364.2	1309.6	1233.7	5852.2	132.9	18229.4	15501.0	-3501.0
7	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	5930.5	132.9	18354.6	15626.2	-3626.2
8	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	4133.8	132.9	16557.9	13829.5	-1829.5
9	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
10	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
11	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
12	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
13	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
14	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5
15	4429.2	1364.2	1309.6	1257.2	0.0	1364.2	1309.6	1257.2	2293.8	132.9	14717.9	11989.5	10.5

HERD CLASSES IN PER CENT

COWS	CALVEF	HEIF1	HEIF2	HEIF3	CALVEM	BULLS1	BULLS2	BULLSF	BULLSB
30.09./.	9.27./.	8.90./.	8.54./.	0.00./.	9.27./.	8.90./.	8.54./.	15.58./.	0.90./.

THE AVERAGE GROWTH RATE OF THE HERD IS APPROXIMATELY 1.93./.

TABLE 6 LIST OF COSTS AND BENEFITS

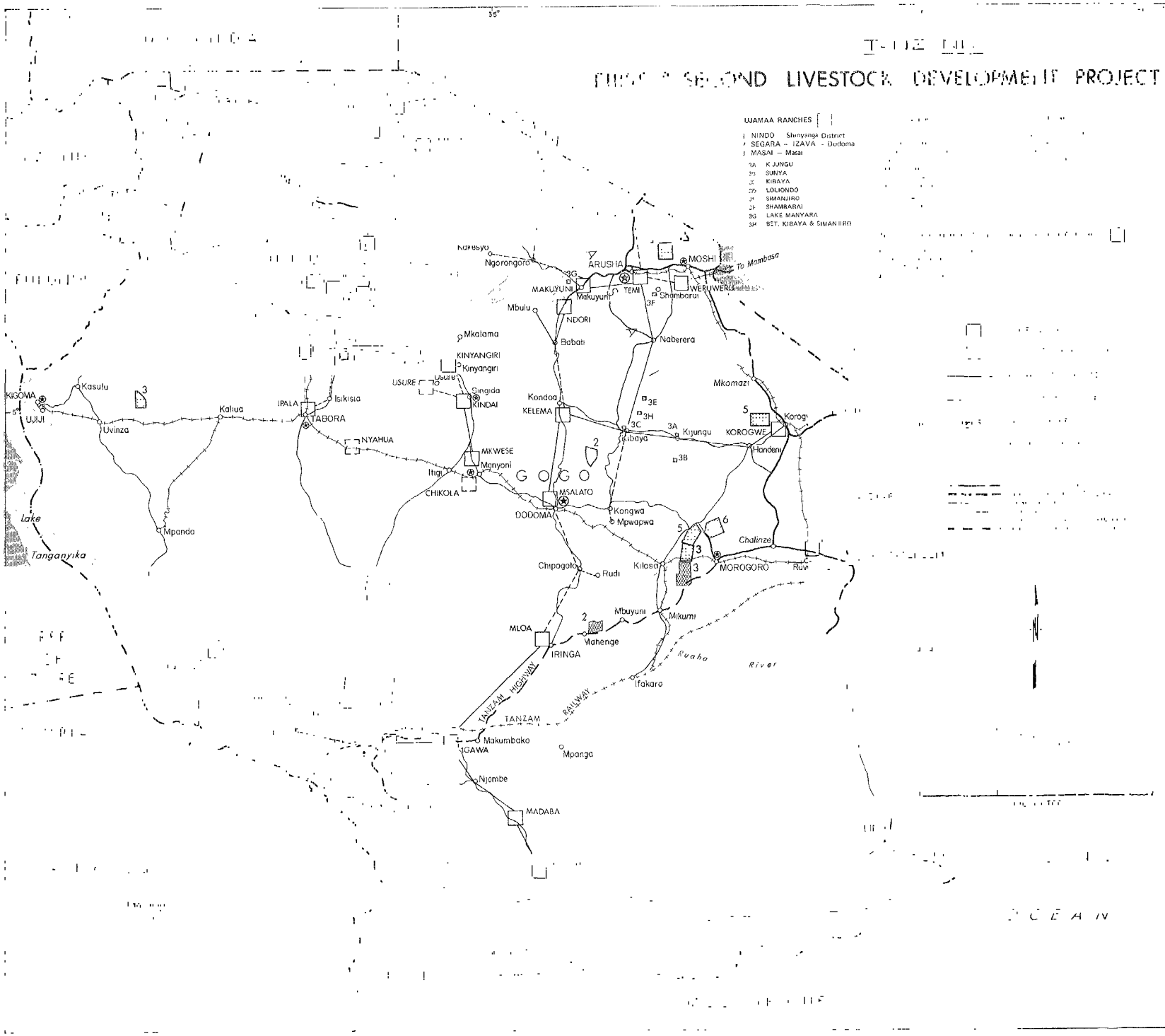
R	INVESTMENT/ REPLACEMENT COSTS	FIXED OPERATING COSTS	VARIABLE OPERATING COSTS	LIVESTOCK PURCHASE COSTS	TOTAL COSTS	BENEFITS LIVESTOCK SALES	OTHER BENEFITS	TOTAL BENEFITS	NET BENEFITS
1	2186000.	330000.	150000.	294394.28	0.	2960394.	0.	0.	0.	-2960394.
2	0.	330000.	225000.	473692.72	1072000.	2100693.	732446.	0.	732446.	-1368247.
3	0.	330000.	300000.	527819.10	820800.	1978619.	1453086.	0.	1453086.	-525533.
4	0.	330000.	300000.	585569.01	836800.	2052369.	1553904.	0.	1553904.	-498465.
5	0.	0.	300000.	580076.40	652800.	1532876.	1902578.	0.	1902578.	369702.
6	0.	0.	300000.	546880.53	454400.	1301281.	1943546.	0.	1943546.	642265.
7	0.	0.	300000.	550638.70	452800.	1303439.	1763659.	0.	1763659.	460221.
8	0.	0.	300000.	496737.35	243200.	1039937.	1849589.	0.	1849589.	809651.
9	0.	0.	300000.	441537.35	43200.	784737.	1473482.	0.	1473482.	688745.
10	0.	0.	300000.	441537.35	43200.	784737.	1054820.	0.	1054820.	270083.
11	0.	0.	300000.	441537.35	43200.	784737.	1054820.	0.	1054820.	270083.
12	0.	0.	300000.	441537.35	43200.	784737.	1054820.	0.	1054820.	270083.
13	0.	0.	300000.	441537.35	43200.	784737.	1054820.	0.	1054820.	270083.
14	0.	0.	300000.	441537.35	43200.	784737.	1054820.	0.	1054820.	270083.
15	0.	0.	300000.	441537.35	43200.	784737.	1054820.	4570469.	5625289.	4840551.

DISCOUNTED PROFITABILITY MEASURES

DISCOUNT RATE	1.00./.	5.00./.	10.00./.	15.00./.
NET PRESENT VALUE	2869989.21	245597.22	-1466290.53	-2292205.16

THE INTERNAL RATE OF RETURN IS APPROXIMATELY 5.72./.

ANNEX 8
Table 6


SECOND LIVESTOCK DEVELOPMENT PROJECT
UJAMAA RANCHES
1 NINDO Shinyanga District
2 SEGARA – IZAVA – Dodoma
3 MASAI – Masai
3A KIJUNGU
3D SUNYA
3E KIBAYA
3G LOLIONDO
3H SIMANJIRO
3K SHAMRARAI
3G LAKE MANYARA
3H BET. KIBAYA & SIMANJIRO
Kakesyo
Ngorongoro
ARUSHA
MOSHI
To Mombasa
MAKUYUNI
Makuyuni
TEMI
Shamboraï
WERUWERU
Mbulu
NDORI
Babati
Naberera
Mkalama
KINYANGIRI
Kinyangiri
USURE
Usure
Singida
KINDAI
Mkomazi
Kondoa
KELEMA
Kibaya
Kijungu
KOROGWE
Handeni
Korogwe
KIGOMA
Kasulu
UJIJI
Uvinza
Kaliua
IPALA
Isikisia
TABORA
NYAHUA
MKWESE
Manyoni
Itigi
CHIKOLA
GOGO
MSALATO
DODOMA
Kongwa
Mpwapwa
Chalinze
Lake
Tanganyika
Mpanda
Chipogolo
Rudi
Kilosa
MOROGORO
Ruvu
Mbuyuni
Mikumi
MLOA
Mahenge
IRINGA
Ruaha
River
Ifakara
TANZAM HIGHWAY
TANZAM RAILWAY
Makumbako
IGAWA
Mpanga
Njombe
MADABA