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SOME ISSUES IN THE EVOLUTION, ORGANIZATION AND OPERATION OF GROUP RANCHES IN KENYA

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SOME ISSUES IN THE EVOLUTION, ORGANIZATION AND OPERATION OF GROUP RANCHES IN KENYA

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Kenya is currently in the midst of a land tenure and organizational revolution affecting in particular the arrangements for economic life in Masailand. The basis of the revolution is a land adjudication program which is turning tribal lands from common property into private property to be held by individuals or groups. All members of the tribe possessing traditional claims are able to receive land. Equally important is a body of new legislation which enables group owners to organize into a corporate body possessing the legal powers to accept loans and conduct a business enterprise. In one fell swoop the government is hopefully creating a set of institutions to facilitate the economic development of pastoral people such as the Masai without at the same time incurring the severe social costs of uprooting and rendering landless large numbers of people.

There are rationales for the program as seen from a number of vantage points. First there is the economic rationale which emphasizes the low order of productivity of most of Kenya's rangeland under pastoral forms of subsistence livestock management. The policy of maximizing the nation's economic growth requires that the pastoral rangelands be brought into commercial production. (Source 8 and 9).

Then there is the ecological or resource conservation viewpoint which emphasizes the gradual deterioration of the rangelands under present forms of common property ownership and the increasing human populations which require increasing livestock numbers for subsistence. The strategy of minimizing losses incurred from increasingly frequent and severe famines among the pastoralists requires that remedial measures be taken which will keep livestock numbers within some semblance of carrying capacities and at the same time provide an adequate standard of living for the people. (Source 10).

Given that there must be change, and this is documented in a number of reports cited among the sources, then there is a humanistic rationale for the program being adopted in that while group ownership makes property rights definite and thereby clears the way for commercial activities, the composition and organization of the groups may retain sufficient reference to traditional associations and authority structures that change will not be allowed to come with a violent wrench.

Before going into some of the problems which may be encountered by the development project its dimensions and underpinnings will be briefly described and some background understanding developed.

The essence of the land adjudication program is that tribal lands, which under the colonial government in Kenya were administered by the government and which, since independence have been held in trust as "trust lands" by the County Councils, will be assigned through a survey and review process to their customary users. Customary use is determined by an adjudication team which submits its findings to an adjudication committee appointed for each section being adjudicated. Appropriate review and arbitration procedures are provided in the act. (Source 1)

The adjudication program for the rangelands for the 1970-1974 period is fairly ambitous, a total of 5,105,000 hectares to be registered by June 30, 1974. (Source 9 p 282, table 8.1). This is about 10% of the total rangeland area of Kenya but the 4,079,000 hectares to be adjudicated in Narok and Kajiado districts comprise 100 percent of those districts.

Estimates of the economic significance of the adjudication program are related to one's theories about property rights. There are two propositions here. One is that under the regime of common property no one has any incentive to take an interest in the long term condition of the rangeland because any such action would amount to an investment, the returns from which could not be captured with any assurance. Thus, under common property conditions it is to everyone's individual interest to use fully or/to overuse the current output of the range. By assigning definite property rights to specific individuals or groups the consequences of misuse and the returns to investment in future productivity are both made specific to the holders of those property rights.

It is possible, of course, for government to take over a common property resource and manage it in the interests of the community or society. This too would correct the shortcomings of common property ownership. That private ownership has been opted for in the case of Kenya's rangelands may reflect the political realities of the tribal lands question and it may also indicate the conviction by the leadership in Kenya that the incentives and opportunities of private property offer a crucial requirement for economic progress. This is the second proposition On both counts the program is obviously rooted in individualistic theories of property rights.

The Concept of Group Ranches:

In the Kaputiei area of Kajiado District where group ranching is getting under way 14 group ranches are being set up in an area of 664,000 acres. One hundred families on the average will occupy 47,500 acres per ranch. The intention is that group affiliations which were identified in surveys carried out several years ago will be preserved in the adjudication which establishes group ranches. Since the Kaputiei Masai are semi nomadic this means that their customary wet season and dry season grazing areas are ideally to be included in the ranch assigned to each group. How well social and ecological balances have been served by land adjudication remains to be seen.

In order to receive government loans a group must organize and register itself with the registrar of group representatives. The process of organization consists of electing a slate of group representatives (not less than three nor more than ten), adopting a constitution, and electing a group committee. A legally constituted group can, through its group representatives, behave as a corporate body. That is, it can hold property, acquire debts, sue and be sued etc. (Such a group does not, however, come under the corporation laws of Kenya. The advantages of having a separate act for group ranches are claimed to be legal simplicity, lower costs and lower tax rates).

The committee is the functioning managerial body for the group. Among other things, it assists and encourages members to follow good technical and commercial practices, raises credit and holds and uses moneys in benefit of the members, may effect purchase or sale of stock or other assets in behalf of members, may levy a cess or charges in respect of the services it performs, and is the decision making authority regarding the rights and obligations of any person in matters relating to the use of group land and other assets (subject to appeals).

Thus we find two layers of authority in the leadership structure of a group ranch. The group representatives occupy a custodial or trusteeship role whereas the committee discharges day to day management responsibilities. Both groups occupy an elected position but whereas Committee Members are elected annually, group representatives serve until they are removed, either voluntarily or involuntarily. Although the committee makes decisions affecting operations the group representatives "may issue instructions to the committee or to any member in any case in which in their opinion, such instructions are in the best interests of the group." The group representatives appear in the role of a council of elders which resolves disputes and takes a hand in matters which are not being satisfactorily handled by the operating committee. It may well be, as one government official suggests, that the group representatives will be the guardians of traditional ways and the buffers against radical change. The committee, on the other hand, may represent a progressive spirit as embodied in one or two progressive committee members. Under such circumstances the division of power between committee and group representatives may be crucial to the economic success of a ranch.

Although the land is held in common and undivided ownership by all members of the group, certain property rights are assigned to the individuals and certain rights are retained by the group as a corporate body. For example, residence rights are given to each member of the group (there are limits which can be placed on the relatives and friends who may wish to reside with members), but the group committee has control over the rights of grazing, tillage and water.

The rights to sale of property can only be excercised by the group representatives with the approval of government (the Registrar of Group Representatives) (Source 1, the Land-Group Representatives - Act of 1968).

This control of property rights has substantial economic implications for the operation of the group enterprise. The group has control of the means of production, grazing, water and tillage, and may establish mechanisms for the allocation of the means of production which can be as efficient economically as they desire. At the same time no member is disenfranchised from his right to reside in the land nor of his claim to some share of ownership in the enterprise.

Aside from the advantage of allocating land in economic units without creating a landless class, the group ranch innovation undoubtedly provides a means for capturing economies of scale in the provision of water, in buying and selling livestock, and in grazing and health practices. Such advantages might elude the individual owners of necessarily far smaller tracts. Whether the tracts are big enough to provide a substantial measure of risk pooling against drought cannot be determined as yet. Studies of strategies for coping with drought would probably reveal that the common property conventions of present Masai grazing practices which virtually permit individual access to all of the tribal lands and waters during times of stress provide highly advantagous means for coping with drought in a system where markets for sale and repurchase are highly imperfect and where the prime goal of management is survival of the herd. Were the problem analyzed in a system where the goal of management was production and where far better markets for sale and repurchase were available the conclusion might be that far less freedom to roam would be necessary during drought times. Whether it would be optimal for the ranches as presently laid out to keep to their boundaries during severe droughts is far from clear. Since European ranches in the same area move cattle from ranch to ranch to take advantage of local variability in rainfall and forage production, a similar practice among the group ranches may prove beneficial.

Some Specific Issues in the Organization and Operation of Group Ranches:

The division of power between the Committee and the Group representatives and the extent to which the Committee can coordinate individual actions in the sphere of livestock production become major themes in an inquiry into the organization and functioning of group ranches. Probably the key area in which this theme will be played concerns control over grazing rights. Although the land is valuable for residence and tillage, its chief economic product is grazing. (Water, of course, is a necessary appurtenance to grazing but its allocation within the ranch will not be subject to the same stringencies of scarcity as grazing). The Committee will have two functions with regard to grazing rights. One will be to enforce the carrying capacities for the ranch which have been agreed upon in consultation with the District Range Officer and which may be revised from time to time. The second will be to allocate, or to set up a mechanism for allocating grazing rights to individual members of the group.

If the government is successful in getting the Masai to accept and enforce limits on the number of cattle to be carried for a given period on their ranches it will have achieved a long standing aim of range management policy. Excessive numbers of cattle on the range have long been a problem created by the Masai policy of acquiring large individual herds and the common property character of the rangeland which gave no one individual an incentive to conserve on the use of the rangeland. Assigning individual rights to specific group ranch properties should give the group, but not the individual, an incentive to find the optimum conservation policy for its ranch land. The individual will still need some forms of persuasion not to be found in the fact of property ownership if he is to observe fixed limits on grazing rights. The pressures of security and prestige which produced large herd build-ups should abate as the subsistence economy is replaced by the cash economy and as the values of commercial livestock husbandry replace traditional livestock values. The emergence of commercial values will mean that rapid turnover of quality herds will replace large herds of low quality and low turnover.

The crucial question is how long it will take the ranch committees to accept the desirability of putting limits on the numbers of livestock to be carried on their ranches. Since the dry season limitation of available water will no longer exist, once water supplies are in, the results of too long a delay in acceptance of livestock controls could be a rapid and widespread deterioration of the range. Ecologists like to point out that the precedent for this deterioration can be seen today along the pipeline road from Sultan Hamud to Loitokitok.

If a ranch committee refuses to accept a responsibility for limiting livestock numbers then it faces no problem of distributing grazing rights to individual members. Each can have as much as he likes and all will share proportionately in the periodic disasters which will follow. If a committee accepts a responsibility for limiting total livestock numbers on their ranch then they immediately face the second problem of how to distribute the limited grazing capacity of the ranch among the members. This will probably be the first time in Masai history that such a course of action has been necessary. In their traditions all within a section share as need be in the grazing and water available in the section. If other sections are in need of grazing they are permitted to enter the territory of adjoining sections in search of grazing and by proper application would be entitled to use the waterholes. This set of reciprocal privileges has kept the condition of common property in rangeland alive across all of Masailand.

We need not dwell on the importance of the allocation issue. If grazing rights are not allocated to the stockmen who can make the most profit with them, then neither the ranch interests, the interests of the lending agency nor the interests of the national economy will be best served. On the other hand, if a handful of individuals monopolize the grazing quota, some will feel that the interests of equity and fairness are not being served. The means and goals chosen for the allocation of grazing rights will therefore be one of the crucial first steps taken by the committee.

There are two broad alternative systems for allocating grazing rights - one is an administrative system, the other a market system. An administrative system would prohibit exchange of grazing quotas without approval of the committee. The committee would be expected to periodically revise the allocation of quotas and at such times would be caught between those who want egalitarian distribution of wealth and those who favor upholding the initially unequal distribution of cattle and grazing rights. But in theory, at least, the group would have control over the distribution of the essential economic privilege of grazing. Whether there is any prospect of a committee being able to withstand this push and pull of opposing interests in making and enforcing such administrative decisions will be referred to again.

A market system for allocating grazing rights could work continuously in that any two members could agree on a transfer of grazing rights for whatever consideration was mutually acceptable and there could also be periodic trading days arranged, say at annual meetings, where those wanting to acquire grazing quotas could bid competitively for the available supply. The principal restriction on such transactions need only be that they be limited to the lifetime of the seller since any transaction extending beyond a lifetime would be a sale or disposal of land in contravention of the law.

The government has proposed a set of rules for group ranches which are broad enough to permit a group to choose either option for the allocation of grazing quotas. On the one hand members shall graze stock in accordance with the grazing quota "from time to time allocated to him" but the rules also clearly state that members shall be entitled to permit any other member of the group to use the whole or part of his grazing quota and a member may transfer his quota to any other member of the group. It is quite clear that the committee cannot have it both ways. A market system of allocation will not work if it is to be periodically overruled by arbitrary decisions.

A somewhat less convincing but still substantial viewpoint would hold that no committee will be strong enough to withstand the pressures on it if it chose to allocate and reallocate grazing rights on some basis of fairness or equity or unfairness and inequity. Neither would please everyone and the resulting dissatisfaction might be fatal to the whole concept of a group ranch. Only if one can foresee highly authoritarian powers excercised by a committee and backed by an authoritarian government can one really conceive of the administrative allocation system as being workable.

The theoretical case for a market system of grazing quota allocation is quite simple. By allowing grazing quotas to go to the highest bidder (after some initial allocation is agreed upon) the system assures that those who can make the most money out of cattle will control the grazing and this in turn will assure the ranch of higher aggregate profits than any other allocation. But of course the profits may be very unequally distributed, depending upon who owns the ultimate grazing rights. If one wanted to make the most money for a ranch and at the same time redistribute a share of the profits he would advocate an equal initial (and therefore inalienable) distribution of grazing rights with free exchange by leasing or rentals subsequently. Rental value would be based on the market's assessment of the profitability of a grazing share and rental values would be shared equally among all members, thus assuring that a share of the profits i.e. rents are equally distributed.

A problem stemming from the separation of ownership and use of grazing quotas concerns the allocation of charges to members. If ownership and use were identical then allocation of investment costs, costs of supplies and materials to operate dips and boreholes and the like could be done according to grazing quota ownership or grazing quota use with no difference in the results. If ownership and use is separate and the committee attempts to allocate all investment and operating costs according to use of grazing quotas, then sooner or later a user is going to object to paying the investment costs for an owner who, he will claim, is benefiting from investment in fixed assets at his, the user's, expense. At first hearing this sounds like the classic landlord-tenant problem in a new setting but the essential element of uncertainty of tenure will be missing if grazing quotas are leased on a long term basis.

Or even with short term leases the fact of irrevocable membership gives a user a degree of certainty of tenure in the enterprise that is missing in the usual tenure problem. Another possible mitigation of the problem comes in the possibility that the committee will act as the head of a firm in making its investment decisions. In doing so it will compare marginal costs and benefits without regard to distributional issues and will reach a correct result. Typical landlord - tenant problems arise because each is looking at a different net revenue function.

Nevertheless, the issue remaining between owners and users will continue to be one of distribution of profits. The organization of a market for grazing quotas will solve this in part but since the allocation of certain common costs will be somewhat arbitrary, the issue will remain. Under a strong committee, however, it need not affect economic decisions. The government will need to take some pains to get its thoughts straight on this issue.

An interesting solution to the allocation issue may be that instead of exchanging grazing quotas members will exchange cattle in order to fully use grazing quotas. This solution will depend in part on whether individuals would prefer to give up control of their cattle or their grazing rights. Also, this will not be an optimal solution to the allocations if there are substantial differences in the abilities of different stockmen. For a good stockman to give up part of his herd to the control of an inferior stockman would be far less productive than for the inferior stockman to give up part of his grazing quota to the superior stockman.

One can see a force working in favour of grazing rights exchange and opposed to cattle exchange. That will be the assessments for meeting principal and interest payments and for paying operating costs. The individuals with the least ability or inclination to operate commercially successful herds will find it difficult or impossible to carry their share-proportionate to their share of grazing rights - of the cash costs. The easiest way for them to handle their obligation - if default is not tolarated - will be for them to find someone else who is willing to take over their grazing rights and with them their share of the payments.

Although not prevented by laws and regulations from owning cattle, government's present intentions are that the group committee will serve only as the agent for buying and selling cattle and as the financial agent for securing and repaying loans. Individuals will own all cattle and loans arranged by the committee may be secured by the pledge of individual chattels. An interesting communal development has occurred on the one group ranch which is currently in operation. This concerns the fact that steers purchased for individuals have been held in a common herd under the management of the committee. This is significant because, if one accepts that some of the more progressive members are likely to be committeemen and particularly if the manager is competent, then management by the committee is likely to be of a higher order of proficiency than management in the aggregate. It might therefore be desirable to see a committee gradually enlarge its management sphere until most of the commercial cattle herd on a ranch is under the direct management of the committee and its hired managers and herdsmen. This would give the committee direct control of calf management, of livestock health, of grazing practice of culling and other essential management techniques which can be introduced only slowly in individual herds. It probably provides the most direct means the group ranch has of harnessing the drive of the more progressive for the benefit of the entire organization.

It may be noted here that some very large issues surround the nature of the decision-making and authority structure which will emerge in the group ranches. First, there is an ambiguity regarding the affinities of the groups which have been identified. The government believes that the <u>elatia</u> associations it has identified are ranch-wide and therefore provide some initial cohesion. Our persistent inquiries in the field into the meaning of the term have elicited one unvarying response: on <u>elatia</u> is a boma! This does not mean there are no affinities among bomas but it does suggest that there may be some misunderstandings about them.

In fact, Jacobs (Source 17) has defined affinity groups which are associated with ecological land units and which possess some internal authority structures. We are not in a position at this point to say that the groups identified in Kaputiei are or are not affinity groups. The fact that some ranches are almost wholly wet season grazing (Source 11) and that our field inquiries have discovered that some families have elected to change their affinities at the time the groups are registered makes us want to inquire further into the ecological and sociological integrity of the ranches as adjudicated.

Finally, and perhaps most fundamentally, if a traditional authority structure does exist within the group, it will have been used to settle legal disputes and not as an instrument of resource management. The two are not the same, resource management having been in individualistic matter. Will traditional authority structures have any useful carryover to the problems of estate management and commercial ranching?

Aside from the hope that progress will come through the efforts of the group committee, either because of the persuasion and demonstration effects of the progressive members who, it is hoped, will dominate the committee or because of the fact that authority for decision and action will be taken over by the committee, there are some economies of scale which can be captured by the group ranches. The first economy of scale concerns the provision of permanent water. The costs of a borehole are mainly due to depth rather than yield and the depth is determined by geological conditions rather than the amount of water desired. There are therefore, large fixed costs in the provision of boreholes which make it economical for a sharing of water as widely as possible. The government is proposing that on the individual ranches in Kajiado District, there be a sharing of boreholes among about three ranches, but unlike the group ranches in common ownership, the individuals will have to work out rules of access which permit ranchers to enter the property of another for water. The costs of pumping water also show decreasing average costs up to a point. The advantages of sharing cattle dips on group ranches rest on similar facts of large initial fixed costs and a declining average cost curve over some range. We badly need more information on the economics of forage utilization and the relationship between size of ranching unit and the costs of dealing with drouth but we can be quite sure that (1) group ranches offer an opportunity to avoid the considerable social diseconomies inherent in the traditional common property ownership of the range, if grazing capacities and rotation plans are enforced, and (2) group ranches provide some advantages in coping with drouth which are not found on smaller scale units.

A Background Note on the Institution of Group Ranching:

In characterizing the institution of group ranching one needs to be aware of certain precedents. Group farming is found in sugar and cotton production in Nyanza in Western Kenya where it has arisen spontaneously as a matter of self help. In the jokakwaro land and labor are pooled to secure advantages of cooperation during peak labor periods and large scale machinery operations in certain stages of production. (Sources 4, 12).

In the Northern Plains states of the U.S. grazing associations lease land which is placed under group management. The associations pay leasing charges, collect grazing fees and other assessments to cover expenses and distribute any profits among members. The associations achieve a private economic advantage from the large scale coordination of grazing and a social advantage by internalizing the costs and benefits of soil and water conservation (Source 13, p.34).

The Israeli kvutzas and Tanzania's ujamaa villages provide the best known examples of cooperative farming for comparison with group ranches. Pragmatic considerations of scale economies and financial advantages of bigness provide an economic rationale for these examples of cooperative farming. (Source 14). Group ranching, however has developed without any of the ideological accompaniment of these more famous examples of cooperation. (Source 15). Group ranching, one may reasonably conclude, is a pragmatic rather than ideological solution to a complex set of issues which have existed in Masailand for long time.

First, there is the issue of progress and development. The Lawrance Commission, whose report presents an early recording of the idea of group ranching for Masailand, refers to a document entitled "A Plan for the Development of Kenya Masailand," in which the authors, a group of Masai and government officers stated "The Masai now wish to progressively give up their nomadic way of life and to settle down to a static existence". (Source 4). While one may cavil at the credentials of the spokesmen, one cannot deny that the statement recognizes certain inescapable conclusions about the traditional Masai way of life.

Above all, this brings the land question into focus. Against a background of the inevitability of providing secure land titles to the Masai the Lawrance Commission showed evident concern that secure title and static existence meant to many Masai a settling down on individual plots of land. The Commission was convinced that Masai leaders did not appreciate the twin dangers of creating subeconomic units and a large class of landless people, both being inherent in individualization of the rangeland.

The East African Royal Commission, which had gone into the land question intensively, discusses individual registration as the only alternative to unregistered tenure, although the Commission does recognize an urgent need to find alternatives to the migratory behaviour and common pasturage of the pastoral peoples in general. (Source 5). Thus, one can pinpoint with sufficient exactitude for our purposes the birthdate of the group ranching concept as falling in the decade between the Royal Commission (1955) and Lawrance Commission (1965) reports.

A further set of problems--the ecological problems of the rangeland - have also been an obvious stimulus to innovation. The theme of compression and restricted movements forced upon the pastoralist by government policies and the consequent overgrazing and decline in range productivity recurs continuously in reports on East African rangeland conditions. At the time of the Royal Commission there was growing realization that destocking and herd controls were by themselves insufficient and unacceptable palliatives for the declining conditions of the land and in fact were inconsistent with the pastoral way of life. The Royal Commission concluded that the main need of the pastoralist is "to find some satisfactory alternative to the old migratory invasion which will bring to his aid some system of economic usage which will save his land". (Source 5 p.283).

Conversations with some of the key persons in government at the time the land adjudication and group representatives legislation was formulated have produced a number of insights concerning the philosophy and intent of the legislation. (F.M. Charnley, L.S. Sherif, S.J. Meadows).

In sum, it was intended that the pastoralists, the Masai in particular, should have a system of documantation which would enable them to operate commercial enterprises on their lands but that they should be protected against rapid change which might upset traditions, create large numbers of landless people, and transform land into on economic good subject to free buying and selling but also that they should be offered simpler instruments than the Companies Act for carrying out this transformation. Another theme found in the explanation of the legislation is that it provides an evolutionary or transitional mode of change based as far as possible on the traditional ways. The outcome of the transition presumably is a more highly commercialized and individualized livestock operation but this really cannot be foreseen clearly since it is something to be worked out within the framework set by the legislation.

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SUPPLEMENT TO DISCUSSION PAPER No. 93

NOTES ON PROJECTED RETURNS TO

GROUP RANCHING

Projections have been worked out for 16 group ranches in Kaputiei section, Kajiado District. The projections, done by the UNDP/FAO survey team, are based on investments in dips and water facilities, a gradual improvement in the livestock production coefficients and a major steer purchase and fattening programme. The projections make a number of assumptions which could usefully be subjected to sensitivity analysis. Some assumptions regarding relative price increases may be unwarranted. Nevertheless, taking projections at face value one can reach some conclusions about incremental returns to cattle ranching in this section of Kajiado District.

The net benefit calculations have been redone by us in order to correct for an error in accounting (see earlier note on discounting involving working capital) and discounted at 15% rate of interest. Of the 16 ranches only 10 have positive net benefits at this rate of discount. The present value of net benefits for the 10 ranches comprising 471,300 acres comes to £117,300. This can be taken as a residual social value which can be imputed as a return to land and/or the initial herd, and/or management. Although arbitrary, the 15 percent discount rate certainly is near the social opportunity cost of capital. It is also the cut off rate AFC intends to use in evaluating projects. As a residual imputed to the land the net present value turns out to be shs.4.71 per acre. In other words the incremental economic benefits increase the value of the land by shs.4.71 per acre. This is equivalent to 0/70 per acre per year in perpetuity at 15 percent.

We may compare this with the present economic situation, as best it can be pieced together. Working with totals for the entire Kaputiei section we find that the estimated milk and meat consumed from the livestock in the section is worth shs.1.60 per acre, the imputed value of cattle products being shs.1.34. To this must be added the reported cattle income of shs.1.30 per acre from sales for a total cattle income of shs.2.64 per acre and a total cash and imputed livestock income of shs.2.87 per acre per annum. (This neglects incomes from stock trading and off-ranch labour). The 10 ranches we are discussing receive a current cash yield from their herds of 6.3 per cent of initial herd value and an imputed cattle income of 6.5 per cent of initial herd value making a total return of 12.8 per cent on initial herd value. (We have neglected to include net annual change in herd value). We achieve equivalence in current and project cash income estimates by computing the present value of a 12 year stream of present cash incomes plus the discounted value of the cattle herd at year 12, assuming no change in herd value. The present value of current income streams is shs.4,514,300/= or shs.9.57 per acre. The projected increment of shs.4.71 per acre means that in terms of primary national monetary income benefits, these ten ranches are increasing their productivity by 50 per cent.

In terms of monetary and subsistence benefits the development project increases total incomes by only 28 percent, assuming that subsistence incomes remain unchanged. The discounted value of current cash and non cash incomes is shs.16.90 per acre at 15 percent interest. In all likelihood milk supplies could increase because of more frequent waterings, better grazing practices and improved genetic traits. This could mean more milk for calves at no cost to human consumption. Meat available from natural mortality should decrease. At present this source makes up about one third of the imputed incomes. There is no allwance in the projections for increased home slaughter of cattle so that if natural mortality drops by 50 per cent as projected this will be a net loss of shs.150,000 per annum in current home consumption which has been ignored in the comparisons. Including this loss drops the increase in total incomes to 19 per cent.

Social and Private Returns

One can expect a divergence between social and private viewpoints on the valuation of returns to a project such as this one. The divergences occur on both tangible and intangible issues. We are concerned here primarily with the tangible issues of definition of net returns, and choice of a discount rate.

It may be argued that from the viewpoint of the ranchers the financial cash flow, after payment of interest and principle on loans, is a more appropriate measure of returns than are the net benefits defined without consideration of financial costs. This may be especially so since the social rate of discount used (15%) is higher than the rate of interest charged to the ranchers (7.5%).

A further matter concerns the possibility of a divergence between the social rate of time preference and the rate of time preference of the group under consideration. Although the usual pattern in agriculture is to find private discount rates to be higher than social discount rates due to capital rationing, it appears possible that the Masai in this case may have a lower rate of time preference than society as a whole, or at least not a higher one.

Although this conclusion is based on an arbitrarily selected value for the social discount rate and on the somewhat imperfect estimate of current returns to liquid capital, the possibility that the Masai have a lower discount rate than the Kenya society as a whole appeals to casual judgement. They are a relatively well off people by comparison with most other peoples in Kenya and therefore can tolerate a lower return on their capital assets. They also have a traditionally high propensity to save as expressed in their preference for accumulating wealth in the form of cattle. Whether this is attributable to strategies for coping with drouth or to traditional value systems, it means a greater willingness to forego present consumption than may be found in the society as a whole. The 12 percent rate of return we have estimated for their present cattle herds may therefore be used as an estimate of their rate of time preference.

Thus, we may discuss private returns on the basis of financial cash flows discounted at 12 percent rather than net primary benefits discounted at 15 percent. From this viewpoint the ranching project increases the productivity of the land resources by 35 percent if only cash values are considered and by 24 percent if both cash and imputed values are considered.

From the private viewpoint the increases in productivity attributable to the development project are somewhat less than they appear to be from the public or social viewpoint. If development imposes many significant intangible costs such as diminution in enjoyment from day to day association with cattle, interference with some of the traditional social and ceremonial uses of cattle, or general intereference with individual freedoms these could well offset the $\frac{1}{4}$ to $\frac{1}{3}$ gain in measurable incomes which development promises to the Masai.

The major issue which seems to come from this analysis is whether the government's planners cannot devise projects which offer far greater gains to the Masai than these initial plans appear to offer.

KAPUTIEI GROUP RANCHES PREDEVELOPMENT INCOMES

1. Primary study area = 664,000 acres, 1,405 families, 16 group ranches

		all livestock	cattle only
2. Reported cash income		shs.879,530	shs.612,600
3. Estimated milk consumption: 22,654 females @ 91 galls milk per annum 1/; 206,151 galls milk at shs 1/60 2/		329,841	329,841
4. Estimated home slaughtered meat 3/			
Cattle			
calves	25 @ 155 @ 0/50 = 1,937.50		
males over 1 yr.	342 @ 750 @ 0/60 = 153,900.00		
females over 1 yr.	180 @ 600 @ 0/60 = 64,800.00		
sheep	1046 @ 60 @ 0/50 = 31,380.00		
goats	1867 @ 60 @ 0/50 = 56,010.00	308,027	220,637
5. Estimated scavenged meat consumption 4/			
Cattle			
calves	3,582 @ 100 @ 0/20		
males over 1 yr.	608 @ 500 @ 0/20		
females over 1 yr.	2,149 @ 400 @ 0/20		
sheep	1,154 @ 30 @ 0/20		
goats	1,621 @ 30 @ 0/20	321,004	304,360

	all livestock	cattle only
Total income	1,838,401	1,467,438
Imputed incomes only	958,872	854,838
Imputed per acre	1.50	1.34
Total per acre	2.87	2.29

Notes:
1. Milk consumption based on Leslie Brown's estimates in "The Development of the Semi Arid Area of Kenya"
2. Milk valued at shs.2/- per gallon less opportunity costs of calf growth losses (3 months growth @ sh.10) and calf mortality (.025 @ 120/- per cow)
3. Reported figures valued at farm sale price
4. Reported figures at minimal value to allow for low quality, and at low dressing out and recovery rates.

ANALYSIS OF TEN RANCHES

A. PRIVATE VALUES:

1.	Predevelopment Total Livestock Income	shs. 2/87 per acre	=	shs. 1,353,000
2.	Predevelopment Total Cattle Income	shs. 2/64 per acre	=	shs. 1,246,550
3.	Predevelopment Imputed Livestock Income	shs. 1/50 per acre	=	shs. 706,950
4.	Predevelopment Imputed Cattle Income	shs. 1/34 per acre	=	shs. 633,950
5.	Predevelopment Yield on Herd Capital			
	Imputed	6.53%		
	Total	12.84%		

6. Present value of 12 years predevelopment income stream plus terminal herd value at 12%
   1,246,550 (6,194) + 9,710,000 (.256) Total shs. 10,213,687
   per acre shs. 21.7

7. Net discounted cash flow plus terminal herd increment for 12 years of development at 12% Total shs. 3,572,220
   per acre shs. 7.6

8. Percent increase in discounted cash flow due to development = 35%

B. SOCIAL VALUES:

1. Discounted primary benefits at 15% shs. 2,346,200
   per acre shs. 4.71

2. Present value current cash income for 12 years at 15% shs. 3,320,900
   Present value of current herd at 12 years shs. 1,193,400
   Total shs. 4,514,300
   per acre shs. 9.57

3. Increase in monetary productivity is 49% but increase in total productivity assuming no change in imputed incomes, is 28%. (The discounted value of current total incomes using 15 percent interest rate is shs. 16.90 per acre.)