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**LIVESTOCK DEVELOPMENT IN THE
PEASANT SECTOR OF HIGHLAND ETHIOPIA:
SOME POLICY ISSUES AND IMPLICATIONS**

by

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INTRODUCTION

1. Ethiopia has the largest livestock population in sub-Saharan Africa constituting about 31% of the ruminant livestock (camels, cattle, sheep and goats) of East Africa (FAO Production Yearbook, 1988). Needless to say, livestock play significant roles in the national economy of Ethiopia. In aggregate, the livestock sector accounts for about 15% of the total GDP and 33% of the agricultural GDP without taking account of the value of draft power and manure (Jahnke, 1982). In contrast, only about 5% of the total GDP and 18% of the agricultural GDP in sub-Saharan Africa is accounted for by this sector (Anteneh et al, 1988).
2. In Ethiopia, next to coffee, livestock exports (live animals and livestock products) constitute a major source of foreign exchange. In 1986, exports of livestock accounted for 17% and 18% of the gross value of the total merchandise (US\$ 399 million, 1981-1986 average) and agricultural exports (US\$ 368 million, 1981-1986 average) respectively. Excluding coffee, livestock exports alone represent 68% of the value of agricultural exports, 87% of this being accounted for by exports of hides and skins (FAO Trade Yearbook, 1987). In comparison, livestock exports accounted for 2% of all sub-Saharan Africa's merchandise exports in the mid-1980s (Anteneh et al, 1988).
3. In the highlands, livestock provide about 53% of the value of the total farm output (again excluding the value of draft power) and more than 80% of farmer's cash income (Gryseels and Getachew A., 1985). In the lowlands, pastoralists derive well over 90% of their cash income from livestock (Anteneh, 1989). Draft power, notably in the central highlands, is a critical input, worth a great deal of value and playing a pivotal role in the prevailing traditional mixed farming system.
4. Following the radical Rural Land Reform Decree of 1975, the Ethiopian Government has made vigorous attempts to organize the rural population into peasant associations (PAs), service cooperatives (SCs) and producers' cooperatives (PCs). The wide spectrum of related objectives and goals include the transformation of the subsistence farming into a well developed commercial agriculture which can take full advantage of improved technology and economies of scale.
5. As regards livestock development, particularly dairying, the government's intention

has been to promote medium- and large-scale operations through the producers cooperatives and parastatals. To this end, most of the private commercial dairy farms on the outskirts of Addis Ababa and other big cities were nationalized. However, the nationalization effort has not generally resulted in great economic advantage. Livestock enterprises taken over by the parastatals or managed by cooperatives have shown no visible success over the last 15 years or so.

6. The paper generally discusses policy and institutional issues related to the topic in post-revolution Ethiopia. In this connection, there seem to be at least two specific questions to be addressed: (1) whether cooperative organizations present a threat to or an opportunity for fostering livestock development in the peasant sector; (2) whether livestock investment provided to the peasant sector is adequate or in conformity with the interests and objectives of the participating farmers. Within this context, the paper attempts to present a brief first-hand account (based largely on personal observations and field visits by the author) of the prevailing situation, with a particular focus on the central highlands. It also considers alternative development options in an effort to stimulate discussion and induce a more in-depth research on the subject.
7. The first part of the paper summarizes the physical resource base and the farming systems of the central highlands. Part two highlights the performance of the livestock sector and provides a very brief picture of the institutions involved in livestock development. Also this part examines the situation of livestock development in these institutions with particular reference to the dairy sector. The third part surveys livestock investments made available by government, non-government organizations and formal credit institutions. The strategic policy issues in livestock development in the peasant sector are discussed in the fourth part. Part five explores the future prospects and the options available for developing the sector. Finally, the paper presents the conclusions and policy implications.

THE PHYSICAL RESOURCE BASE AND THE FARMING SYSTEM OF THE CENTRAL HIGHLANDS

8. Ethiopia alone accounts for about 50% of the total highland zone in tropical Africa. The highlands zone represents 40% of the total land mass of the country where well over 80% of the human and 75% of the total livestock population are found. The central highlands on which this paper focuses constitute about 26% of the total

highland area in the country. The central highlands are characterized by an altitude ranging from 1800-2700 m.a.s.l. and an annual precipitation of 700-1200 mm with an estimated growing period of 150-300 days, and a mean temperature of 13-19°C. Vertisols and cambisols are the most pervasive soil types in the region. Mixed farming is the dominant production system in these areas. (Assefa, 1989, drawing from various sources).

9. The major grain and livestock producing regions of the country — Arsi, Gojjam and Shoa - make up nearly 50% of the central highlands. Approximately 64% of the total area of Arsi, 54% of Gojjam and 38% of Shoa are regarded as high potential mixed farming areas. In these regions, about 85% of the rural population is engaged in traditional mixed farming, while only 13.6% and 1.4% are estimated to specialize in crop and livestock production respectively. (PPD/MOA, 1984).

PERFORMANCE OF THE LIVESTOCK SECTOR

10. In general, the performance of Ethiopia's livestock sector is disturbingly poor. It does not even compare favourably with the average performances of East Africa and sub-Saharan Africa. Comparative data on the total output level and growth rates of selected commodities are provided in Table 1.

Table 1. Estimated total output^{1/} and average growth rates of major livestock commodities.

Commodity	O U T P U T				
	Volume (000 MT)		Annual Growth (%) ^{2/}		
	Ethiopia	East Africa	Eth.	E.A. ^{3/}	SSA ^{3/}
Beef	214 (21) ^{4/}	1020	0.4	3.1	2.4
Mutton	86 (36)	237	2.2	3.0	3.1
Cow milk	595 (14)	4323	1.1	4.3	3.5
Hides & skins	70542 (28)	251020	0.5	2.5	2.1

^{1/} 1985

^{2/} 1975-1985

^{3/} E.A. = East Africa; SSA = sub-Saharan Africa

^{4/} Figures in brackets are percent shares of Ethiopia's output in East Africa (Ethiopia, Kenya, Somalia, Sudan, Tanzania and Uganda).

Source: Anteneh (1989).

11. The significant share of Ethiopia in East Africa's total output is certainly attributable mainly to the size of the livestock population rather than productivity as will be observed below. The growth rates, particularly of beef and cow milk, vis-à-vis the average human population growth rate of 2.9% becomes a major cause for concern in Ethiopia.
12. Similarly, as Table 2 shows, the yield levels for meat and milk are much lower in Ethiopia than the average figures for East Africa and SSA.

Table 2. Average yields for beef, mutton and cow milk, 1985

Commodity	Ethiopia		East Africa		SSA
	1/	2/	1/	2/	1/
Beef	100	8.2	127	14.6	130
Mutton	10	3.7	12	3.5	12
Cow milk	219	23	343	63	329

1/ Per animal slaughtered or per cow milked

2/ Yield per animal in total herd/flock.

Source: Anteneh (1989)

13. A marked difference is observed between the yield per productive animal and the yield per total herd/flock. The latter is believed to be more representative of average performance. Both methods, however, vividly show the existing wide gap in the yield of cow's milk between Ethiopia and the East African countries as a whole. Also the difference in beef yield becomes more pronounced when yields per animal in total herd or flock are compared. Exceptionally, Ethiopia's mutton yield per animal in total flock compares favourably with East Africa's average mainly because of the low performance of Somalia (1.2 kg) and Tanzania (2.7 kg) in this respect.
14. The major constraints facing the livestock sector are: feed, genetic structure, animal health and other technical factors such as water; socio-economic and

institutional (land tenure, economic policies such as price and trade policies, shortage of investment capital). Many of these will be touched upon in the subsequent discussion.

15. Institutions involved in livestock development are peasant associations (PAs), service cooperatives (SCs), producers' cooperatives (PCs), parastatals and the private commercial sector. As at September 1989 there were 17015 PAs, with 4.8 million household members; 3518 SCs encompassing 15310 PAs (about 4 million household members) and 3316 PCs throughout the country (Adera W. Cooperative Dept., MOA, Personal communication). The following section briefly reviews the state of livestock development in each institution.

INSTITUTIONS IN LIVESTOCK DEVELOPMENT

Peasant Associations (PAs)

16. Peasant associations (PAs) by definition are mass rural organizations (at grassroots level) with an average 280 household members and a total landholding of about 800 hectares per PA. In peasant associations where PCs have not been formed and also where smallholders have not had any livestock credit services, the manner of grazing land allocation and utilization and the mode of production and livestock keeping in general have remained the same as in the pre-land reform period. In these circumstances, private as well as communal grazing land continue to be the main sources of feed. The traditional extensive management system still prevails. Where smallholders receive credit through SCs, AIDB obtains assurance that adequate pasture land, ranging from 1.5-2 ha. per adult animal, would be allocated for each participating farmer. It has, however, proved very difficult for the bank to verify this landholding on the spot.
17. In contrast, in PAs where PCs have been formed it is not uncommon to reserve extensive grazing land of relatively good quality for use exclusively by PCs. As a direct consequence, non-PC members' animals are restricted to grazing small and marginal private as well as communal grazing lands. In these situations severe soil erosion and land degradation resulting from overstocking constitute a major concern.
18. As will be noted in subsequent discussions, some individual smallholders who are

members of PAs have been participating, in dairy, beef fattening and draft oxen loans for some time now. Generally, however, government policy has given low priority to the promotion of individual-ownership small-holder dairy enterprises in the peasant sector. It is only recently that the government started supporting such programs on an extended scale in the post-revolution period -- e.g. the Government of Finland supported Selale Peasant Dairy Development Project.

Service Cooperatives (SCs)

19. Service cooperatives (SCs) representing an affiliation of 3 to 10 PAs, are established to facilitate the bulk purchase and supply of inputs and farm implements, and to provide, in the main, produce marketing, milling as well as shopping services to member PAs. Apart from providing these essential services, a large number of SCs in various regions have in the past been actively involved in dairy farming using hired management. While their direct participation in production activities had been questioned from the outset, their extremely poor standard of management has additionally precipitated the fast closure of most of the SCs' dairy farms. Service cooperatives are now in principle barred from direct participation in dairy production.

Producer Cooperatives (PCs)

20. Producer cooperatives (PCs), whose nuclei start in PAs, are institutions where the means of production are collectively owned and utilized. PCs can be formed with a minimum of 3 households and become legal entities with a membership size of at least 30 households, provided other preconditions for economic viability are fulfilled. In full-fledged PCs, where all members of the PAs have become members there can be no privately owned grazing land. This means, all privately owned animals would have to be kept on communal grazing land outside the PC holding. Some cooperatives have altogether abandoned individual ownership of animals due to the critical shortage of pasture land.
21. Invariably, PCs' oxen and improved dairy animals have priority over privately owned animals in the allocation of pasture land (0.5 ha/ox and 1-2 ha/cow and its followers, on average). Consequently, as pointed out earlier, privately owned animals are destined to poorly managed and marginal lands. This special attention

given to PC-owned animals has in fact aggravated the overstocking of communal grazing land. For this reason, PC managed livestock activities are generally resented by non-PC members as well as PC members.

22. Cultivated fodder production to supplement natural pasture is not wide-spread, and even where it has been introduced the scale of operation is limited to 1-3 ha. Also concentrate feeding is not generally encouraged on grounds of its cost implications, though it is not part of government policy to discourage concentrate feed use.
23. In some PCs, inadequate pasture and shortage of water have seriously hampered livestock activities. In others, where dairying has not been started and where cooperative activity is confined to crop production, livestock development has been relegated to mere oxen keeping. In some localities where improved sheep raising has been started, a rule-of-thumb pasture land allocation of 0.2 ha/adult sheep is followed, but with increasing pressure this does not seem to be sustainable in the future.
24. PC operated farms are in general also more intensively cultivated with virtually no fallow land, and they do not follow strict crop rotation systems either. As a consequence, especially in areas where livestock density is considerably high even the dairy animals are reduced to a scavenging status along with sheep, goats and poultry. Due to the existing demarcation of landholding between PAs, the free movement of animals for grazing from one locality (PA) to another has become almost impossible.
25. All in all, PC dairy farms have not performed well even where the resource endowment is considered adequate. The productivity of cross-bred cows (F₁) in PCs is limited to a maximum of about 1500 lts/lactation on average, while 2000-2500 lts/per lactation is the expected yield level under reasonably good management. However, more worrisome at the moment is the sudden disruption of PC-managed dairy activities in the face of the unexpected dissolution of a large number of such cooperatives across the country.

Parastatals

26. The existing state-run dairy enterprises (15 in total) on the outskirts of Addis

Ababa and other big cities, with the exception of 2 or 3, are ones which were taken over from private operators. Among the first nationalized dairy farms, some 3 were closed down, some have been consolidated and rehabilitated, and some have been restructured. Only 2 or at most 3 new state-run dairy farms have been established during the post-revolution period.

27. All the major dairy processing plants including the Shola Milk Processing Plant in Addis Ababa are state owned and operated by the Dairy Development Enterprise (DDE). In 1987 and 1988, the state farms supplied on average about 36% of the total annual fresh milk throughput of the Shola Milk Processing Plant. In the same period, the supply by smallholders (through collection centers) and private commercial dairy farmers accounted for 32% and 6% respectively. Imported milk powder (including food aid) used to reconstitute milk accounted for the remaining 26%.

Private Commercial Farms

28. Some of the privately owned small and medium size commercial dairy farms have been seriously disrupted to the point of bankruptcy, and far worse, some have been altogether abandoned. Due to the critical feed shortage, ascribed mainly to the land tenure system, and other technical and non-technical constraints, only some six private commercial dairy farms have been considered viable enough for bank financing in the post-revolution period.

INVESTMENT IN THE LIVESTOCK SECTOR

29. This section briefly discusses the flow of investment funds into livestock activities. Investment funds are made available from various sources including the central government, external grants and borrowings, non-government organizations (NGOs) and formal credit institutions. The following discussion attempts to provide only orders of magnitude of funding from the above sources.*

* A more comprehensive study on livestock investment in post-revolution Ethiopia is in the process of preparation by the author.

30. During 1981-89, investment budget allocations from the central government to the agricultural sector as a whole (domestic as well as external grants and borrowings) averaged about Birr 511 million annually (Birr 2.07 = US\$1). During the same period, the allocation to the livestock sub-sector, excluding fisheries, was on average only Birr 45.6 mill. annually or 9% of the total for the agricultural sector. Out of Birr 45.6 mill., about 50% was secured from external grants and borrowings, the latter accounting for as much as 75%. The EEC, World Bank and the African Development Fund (ADF) were the major external contributors. Although information on actual expenditure was not readily available for comparison, normally the actual budget utilizations would be much lower than the above indicated budget approvals (ONCCP, 1981-1989).
31. In 1989 there were 12 NGOs administering 31 agricultural projects including livestock. According to the Ministry of Agriculture (MOA), which has, since mid-1989, taken the coordination responsibility for NGO agricultural activities in Ethiopia, these NGOs have allocated about Br 108.5 million for the agricultural sector as a whole for a duration of three years on average. Of this amount, some Br. 13 mill. or 12% of the total has been earmarked for livestock and livestock-related activities. The major NGO-supported livestock activities include veterinary services, dairy cattle, dairy goats and rehabilitation and development of pastoralists. The amount allocated to pastoral activities accounts for about 70% of the total NGO funds allocated to livestock development (MOA, 1989).
32. There are also UN (FAO and UNICEF) and other NGO-funded livestock activities under the direct supervision of the Relief and Rehabilitation Commission (RRC). During the last five-and-half years (1985-1990) about Br. 2.5 million in the form of grants was allocated both for settlement areas (27%) and rehabilitation projects (73%). Funds for the purchase of draft oxen constitute the major share of the grants, especially in the settlement areas (RRC, 1990).
33. The Agricultural and Industrial Development Bank (AIDB) and the Commercial Bank of Ethiopia (CBE) are the two financial institutions channeling formal credit to the peasant sector as well as parastatals. During 1981-89, domestic bank loans (AIDB and CBE loans combined) represented on average about 50% (Br. 516 mill. annually) of the total fund allocated to the agricultural sector (Br. 1,027 mill. annual average over the same period). Credit to individual smallholders and non-

registered PCs (i.e. those PCs without legal status) has so far been extended through the registered SCs on an on-lending basis. The registered PCs on the other hand are eligible for direct bank credit.

34. During 1983-88, CBE's portfolios show that loans to the agricultural sector averaged about Br. 53 million annually or 5.2% of the total to all sectors (Br. 1009 mill. over the same period). It is believed that the lion's share went to financing oxen purchases in conjunction with fertilizer credit (CBE, 1983-1988).
35. In contrast to CBE, AIDB plays a major role in the financing of the agricultural sector. During 1976-89, AIDB disbursed a total of Birr 3,333 million in agricultural loans or an average of about Br. 240 mill. annually. Although this represents a relatively large injection of funds into agriculture, the state farm sector has absorbed a very high proportion. As Table 3 shows, out of the total agricultural loans disbursed during this period, the share of the state farms was about 79%, while that of the peasant sector (cooperatives and smallholders combined) was only 21%. The proportion of the total credit going to livestock development as a whole has remained low and on average accounted for only 3% of total agricultural loans. Again the parastatals took the major share with 73% of the total value of loans disbursed to the livestock sector. The peasant sector and private commercial livestock activities constituted 25% and 2% respectively. Close to 94% of livestock development loans to the peasant sector were loans disbursed for the purchase of oxen as shown in Table 4.

Table 3. AIDB, agricultural loans disbursed -- 1976-1989
(Mill. Birr*)

<u>Total</u>	<u>Agriculture Sector</u>		<u>Livestock Sector</u>			
	<u>State Farms</u>	<u>Peasant Sector**</u>	<u>Total</u>	<u>Parastatals</u>	<u>Peasant Sector**</u>	<u>Private (Commercial)</u>
3332.7	2626.0	706.7	103.6	75.3	26.0	2.3

Source: Agricultural Dept., AIDB. Compiled from various Credit Operations Reports., 1976-1989.

* 1 US\$ = Birr 2.07

** Individual borrowers and cooperatives; cooperatives include coffee and tea-producing cooperatives.

36. Although government policy was supposed to give priority to the financing of cooperative dairy farms, as Table 4 shows, draft oxen loans to smallholders and loans for beef fattening by the private sector have turned out to be dominant. One could not explain whether this resulted from conscious changes in policy, although the oxen loans seem to have been prompted by the availability of the IFAD credit. The loan extended for dairy development in the peasant sector (i.e. both PCs and individual borrowers) was minimal, constituting only 2% of livestock development credit to that production sector. Although no breakdown is available for the state sector, dairy development loans seem to have had a similar share in livestock credit extended to the parastatals.

Table 4. AIDB livestock loans disbursed by sector and enterprise - - 1976-1989

Sector/Enterprise	No. of Loans	Value (000 Birr)	Distribution (%) within sector	Remarks
Peasant Sector				
- PC dairy farms ^{1/}	30	438)	-----	(Standard package (includes 10 heifers + 1 bull
- Smallholder individual dairy loans ^{1/}	10	137)	2	(On-lending by SCs, (consisting of (171 heifers
- Beef fattening ^{1/}				
. PCs	26	575)	4	(On-lending to
. SCs	7	436)	-----	(smallholders by SCs
- Draft oxen ^{2/}	69549 oxen	24400	-- 94	(On-lending to (smallholders by SCs
Private Commercial by sector^{1/}				
- Dairy	6	310	13	
- Beef fattening	20	2000	87	
State Sector^{1/}	N.A. ^{3/}	75318 ^{4/}		

^{1/} Source: Agricultural Dept., AIDB, compiled from various Credit Operations Reports, 1976-1989

^{2/} Source: IFAD Agricultural Credit Project, Quarterly Progress Report, October 1-Dec. 31, 1989, Report No. 23. AIDB

^{3/} N.A. = not available

^{4/} Breakdown by enterprise not available.

37. The above brief presentation, although only broadly indicative of orders of magnitude, shows that much of monetary investment has been made in the state sector. While no detailed figures were available to make more precise estimates, the state sector's contribution to national livestock output remains extremely low in spite of the considerable investment put into it. Within the peasant sector, where individual operators contribute most to agricultural output including livestock, producer cooperatives take almost two-thirds of AIDB livestock production loans (i.e. excluding oxen loans). Two important premises underpinned government policy to support greater investment in the state sector and producer cooperatives compared to individual smallholders or the private commercial sector. These are that the state sector and producer cooperatives will have greater capacity to utilize more "modern" technologies as well as demonstrate greater efficiency deriving from positive economies of scale. There is as yet no verifiable evidence that this is borne out by the performance of these organizations over the past 15 years or so.

STRATEGIC ISSUES IN LIVESTOCK DEVELOPMENT IN THE PEASANT SECTOR

Cooperatives and Mixed Farming

38. The importance of mixed farming has been steadily declining in producer cooperative farms. From among the existing producer cooperatives, only some 29% practise traditional mixed farming, maintaining the crop and livestock associations under one management unit and the horizontal integration between the two enterprises through the use of draft oxen. About 70% are engaged exclusively in crop production, but maintain the horizontal integration of crop and livestock productions. The remaining 1% operate specialized livestock enterprises. Draft oxen alone account for about 87% of the livestock population in producer cooperative farms (PPD/MOA, 1984). The large oxen population reflects the prevailing strong emphasis on crop production resulting in the negligence of conventional livestock development activities such as dairy, sheep, etc. In view of this, it will not be an exaggeration to generalize that livestock development in PCs (with some exceptions) has been reduced to oxen keeping. Even oxen have been losing their multiple function in terms of transport and threshing services. In addition, the widespread mismanagement of crop residues and non-use of manure

for fertilizer, probably due to cost considerations in collection and distribution, have impeded the crop-livestock integration effort.

39. Development finance institutions should also help more in furthering the idea of feasible integration. For example, in some cooperatives where crop and livestock enterprises are promoted side by side, their financial viabilities are evaluated independent of each other without proper account of their economic interaction (complementary and/or supplementary relationships) within the context of a mixed farming concept.
40. There is a general impression that mixed farming can be more easily reinforced at smallholders level, in comparison to cooperatives, for several reasons: animal power can provide at least triple functions - traction, threshing and transport. At the same time, proper utilization of crop residues, rotation with fodder crops and fallowing will substantially reduce the burden on the natural pasture. Additionally, effective use of manuring would reduce the demand for fertilizer. All these in general have not been promoted in producer cooperatives probably due to the relative ease with which alternatives (e.g. tractors, motorized transport, fertilizer etc.) are made available to them as a matter of government policy.

Cooperatives and Pasture Land Availability

41. Crop production has been and will probably remain the primary activity of PCs for a long time to come. Crop land allotment of about 2.5 ha. per household member is more or less a standard in PCs so long as arable land is available. In contrast, no pasture land is allocated to individual members. The common practice is, as indicated earlier, that pasture land adequate enough to support PC owned animals is first set aside to the cooperatives and the rest is left for communal grazing for non-PC members. Measurement of pasture land is a rare practice and hence very few cooperatives know precisely the size of their holdings. This is further compounded by the absence of livestock inventory. Consequently, determination of the optimal carrying capacity of the available pasture land is becoming increasingly difficult. In these circumstances, both physical and financial plans in this sector have been mostly based on intelligent guesses. In other respects, service cooperatives (SCs) often claim to have abundant grazing land in their PAs in order to obtain livestock credit. Appraisals of loan requests should consider

that individual farmers tend to maximize their benefit from the communally held grazing land without being much concerned about its conservation.

Breeding Policy

42. In recent years, some effort has been made in the genetic improvement of the local dairy animals through cross breeding. However, there has, hitherto been no concrete and binding breeding policy with regard to the choice of the exotic breed types to be crossed with the indigenous animals and the corresponding exotic blood level of the crosses. A study proposal by the Ministry of Agriculture regarding such policy has been submitted for decision by government but has yet to receive formal approval.
43. The study proposes Friesian and Jersey crosses with local Zebu (Borana, Arsi, Horro, Barka, Fogera) with exotic blood levels, of 50-75% to smallholders. The choice of the Friesian and Jersey breeds will be contingent upon, among other factors, feed availability and the potential market for liquid milk. Jersey crosses will be the choice where these constraints appear insurmountable at least in the short-run. (AFRD, 1986).
44. So far Friesian crosses with Borana and Arsi are the foundation stocks in cooperative dairy farms. The Arsi crosses are less popular in regions other than Arsi mainly due to their poor productivity (on average 3 lts/day) and bad temper, though some experts argue that their low feed requirement offer a great advantage. The partial supply of Arsi crosses in the IFAD supported cooperative dairy farms and in the Finnish supported smallholder dairy farms (both in Shoa region) has already resulted in a mounting dissatisfaction. As part of the promotional effort, in-calf heifers (Borana x Friesian and Arsi x Friesian) supplied to cooperatives are highly subsidized; unfortunately, availability of heifers has proved to be a major constraint.

Marketing and Pricing Policy

45. There has been some but much less strict and direct government interventions in the marketing and pricing of live animals and livestock products of the peasant and private commercial sectors. The prevailing primary market government price for cattle is Br. 1.40-1.50 per kg liveweight. Cooperatives and smallholders within

a 100 km radius of Addis Ababa are expected to deliver their milk to the collection centers of the Dairy Development Enterprise (DDE) at Birr 0.50/lit. In the face of far better open market prices (up to Birr 0.85/lit.), and most importantly, the alternative of getting into the high-priced cooking butter market, the government's fixed milk price can hardly be expected to continue to attract many smallholders and private commercial dairy farmers to deliver to the DDE. The present average daily throughput of the Shola milk processing plant in Addis Ababa is in the region of 25-30,000 lts/day as against a theoretical capacity of 60,000 lts/day. Given the idle capacity of the plant and the concurrent unsatisfied demand for milk in Addis Ababa, a review of milk marketing and pricing policy appears imperative.

Farmer Participation

46. PCs have in general had limited opportunity and authority to participate in deciding what is economically, socially and culturally good for them. The outstanding factors hindering farmers' participation include the following:
- (i) most obviously, government intervention is based on a top-down development approach which has led to the imposition of ideas, frequent coercion and virtual control. The participation at the grassroots level has hardly been more than a token gesture;
 - (ii) PCs are as a rule organized on a large scale (e.g. in 1986 there were 1021 members in the Yetnora Producers Cooperative in Gojjam region) and communications and decision-making have become too bureaucratized, creating serious management problems;
 - (iii) lack of incentives: the remuneration system based on labour points accumulated does not induce higher labour productivity and as a result the enthusiasm for active participation is very low;
 - (iv) fixed grain prices and the mandatory quota system have inhibited committed participation;
 - (v) insecure landholding rights have above all contributed to the generally apathetic attitude which the members of most cooperatives have adopted;

(vi) financial irregularities and misappropriations which seem to be widespread undermine the confidence of the members in their cooperatives.

47. In this context, cooperative dairy enterprises have presented particular and specific problems in farmer participation. Generally, since the collectively managed enterprises in this case have been imposed rather than based on farmer demand, may tend to regard them as government managed projects rather than their own. Farmers also have a perception that the dairy farms create increased competition for scarce crop land while net returns are not sufficiently attractive in terms of the higher risk they face with the greater susceptibility of cross-breds to diseases and the uncertainty of adequate supplies of concentrate feed. In many instances producer cooperative members think that dairying can better be operated under individual smallholder management even where the natural feed resource base and health care are on a more modest scale.

FUTURE PROSPECTS AND OPTIONS

48. A recent study (Assefa, 1989) dealing with a resource allocation problem of cooperative farming in the central highland regions of Ethiopia revealed that specialization in crop production does not provide the opportunity for optimal allocation and efficient utilization of the physical, human and financial resources. The study has established that an optimal mixed farming, consisting of a few major crops, dairy (20-50 lactating cows) and sheep (100-300 ewes), would substantially improve the productivity of PCs. On this basis the model projected that individual members' farm income would grow by at least three-fold. This model presupposes better management and availability of adequate credit for securing an optimum mix of technology including draft oxen and tractorization. It also assumes that farmers will continue to commit freely their resources to the PCs' production needs.
49. Taking the economic benefits as the sole criteria, the optimal organization of PCs on such a scale looks very attractive. However, in the face of the problems currently facing cooperative farming systems, the question is whether this development approach would be convincing to farmers to participate voluntarily. As it has been witnessed in Arsi region and elsewhere some cooperatives have been dissolved and the land has been redistributed to the members leading to a restoration of individual smallholder farming.

50. Livestock keeping under the traditional individual smallholder management system may be supported from the social and cultural viewpoints. Where economies of scale deriving from larger sized operations are considered important in the introduction and adoption of improved livestock technology in production, processing and marketing, reverting to small individual holdings would not offer a unique and optimal solution to the development of a viable livestock production system in the peasant sector. On the other hand, as indicated earlier, farmers are unlikely to be persuaded to join groups based on collectively owned and managed resources. The following options are indicated for future consideration.

51. i. Group Farming

A group farming system based on individual ownership of the means of production (land, animals, etc.) and individual freedom in the appropriations of farm income, but cooperatively organised farm operations would facilitate the absorption of improved technology and management system with economies of scale advantages.

52. In order to avoid past problems, group farming initiatives should be guided by farmer participation being truly voluntary. Individual smallholder operations need not be disrupted until the farmers themselves fully appreciate and recognize the benefits of group undertakings. The size of the group should as well be determined by the farmers themselves with some assistance and/or advice from extension and credit officers. Some guidelines on the economic and social characteristics of farmers which form particular groups would help establish desirable homogeneity. By and large, such group farming would adopt extensive management system at least in its initial phase of development.

53. As far as livestock development (particularly dairying) is concerned, the group farming effort would start with selected local cows to be integrated with crop production. Subsequently, when this proves viable, cross dairy animals along with the associated technology would be introduced. Though the emphasis so far has been on dairying, the meat production component is equally important. Considerable effort should be made to strike a balance between the two commodities, i.e. between milk and meat. Oxen loans aimed at only increasing crop production need to be carefully re-examined in terms of incorporating a commercial beef fattening scheme.

54. To facilitate the marketing of fresh milk in particular, several small milk-collecting centers within the proximity of the producing farmers need to be established. These centers need to be integrated with the primary SCs to be established at the PA level. In turn, these primary SCs would be integrated with secondary SCs to be established at the next higher level serving, say, up to 10 PAs. From there on, there could be a chain of advanced SCs (with more facilities) at district or provincial level depending on the proximity of the terminal markets. Under the circumstances where this marketing structure would not be effective or where transportation of liquid milk is cumbersome, small-scale processing technology should be considered as an alternative.
55. In developing group farming systems, careful study of the experience of other countries in group production, processing and marketing would be very useful. In this connection, adequate lessons from other countries and organizations should be drawn e.g. the Grameen Bank of Bangladesh, the rural banking system in Ghana, group farming in Nigeria, the group credit schemes in Malawi, the Small Farm Credit Programme in Zimbabwe, 'Operation Flood' dairy development in India and the Kenyan Cooperative Creameries (KCC). In fact, before embarking on large-scale implementation of group farming in rural Ethiopia, pilot trials will be essential to assess the proper entry points into the existing farming system with due attention to the prevailing political, social and economic environments. These pilot programs would provide basic information on such matters as an optimum economic unit, patterns of resource allocation, credit and marketing systems, and effective approaches to the provision of extension and technical services.

56 ii. Individual Smallholder Production

Where the feed resources are adequate and economic infrastructure are better developed, the promotion of individual smallholder dairy enterprise systems and/or small-scale fattening schemes, appears to be feasible as another option. Intensive management in resource utilization would seem proper in the framework of this option. In the immediate future, however, as smallholders are not organized and ready to undertake either group or individual ventures, private commercial dairy farmers around major urban cities should be encouraged. In fact, their success would have an impact on the rapid progress and promotion of rural dairy farms

through the supply of improved foundation stock and other dairy and livestock-related technologies.

CONCLUSION AND POLICY IMPLICATIONS

57. Government investment policy in the livestock sector has put great emphasis on development through producers cooperatives and parastatals. A central point in this policy has been that these organisations would facilitate "modern" technology adoption and achieve higher productivity in operations with greater economies of scale. However, there is little evidence to support that this strategy has been successful in improving livestock production in Ethiopia. There is an imminent need to examine alternative approaches to livestock development in the peasant sector.
58. From the foregoing discussions it can be concluded that successful financing of livestock development in the peasant sector as a whole is in the main contingent upon policy measures dealing with technical (feed supply and breed type) and non-technical (pricing and institutional) constraints facing the sub-sector. The major policy issues singled out for discussion are: mixed farming systems, pasture land allocation, animal breeding, credit services, pricing, and farmers' participation.
59. Mixed farming at the smallholders' level is still widely practised in its traditional form without any policy guideline. It needs to be developed further in the stricter sense of the concept. It is grossly neglected at cooperatives level however; mixed farming systems do not end with the keeping of draft oxen. Despite the fact that livestock generate the greater proportion of farmers' cash income, development policy is unduly skewed in favour of crop production.
60. It is necessary to reverse this trend and to strike a balance between crop and livestock development. A policy which promotes and supports mixed farming development should be adopted as a strategy in the highland regions in general and central highlands in particular. Credit services should also be orientated to a mixed farming concept. The optimal allocation and efficient utilization of scarce resources would be better achieved through such a policy.
61. The vast number of animals presently depending on communal grazing land are

almost on a starvation diet. The absence of conscious pasture land allocation as well as its improper management have resulted in overstocking and the eventual exposure of the communal grazing land to erosion and degradation cannot be overemphasized. To mitigate and subsequently avoid this situation a policy to guide the composition and size of individual livestock holding and the corresponding management system (extensive and/or intensive as the case may be) should be elaborated. Destocking of communal grazing land (may be through levying prohibitive fees on surplus animals) would hopefully coax farmers to be quality conscious.

62. Government services promoting livestock development should seriously re-examine the present ad hoc policy of introducing exotic breeds particularly for dairy purposes. Spontaneous and arbitrary distribution of low potential cross-bred dairy animals such as Arsi crosses, which have become notorious for their low productivity and adaptability problems in other regions, would have grave consequences in improving the productivity of the national dairy herd. Hence, a well defined breeding policy to be enforced by law should be considered as soon as possible. Indeed, it should be a priority task in developing the sub-sector.
63. The introduction of livestock technology in the peasant sector should as much as possible be compatible with the farmers' level of management and debt absorbing capacity. Concurrently, its sustainable supply as well as availability of credit to facilitate its acquisition by farmers needs to be accorded close attention. Along with this consideration, the operation needs to be market-oriented so that the cost of technology could be recouped within an acceptable period of time.
64. Financing of improved livestock enterprises, notably dairy, is mostly handicapped by, among other constraints, the supply of foundation stock and feed, as well as market outlets. Therefore, credit services should first focus on linkage projects such as heifer supplying ranches, feed supplying enterprises, milk processing technology, and the like.
65. In order to attract potential entrepreneurs, adequate price incentives should be given to smallholder livestock producers. In general, the price ratios between grain and livestock commodities need to be carefully re-examined. But, most urgently, the current milk price offered by the Addis Ababa dairy industry will

have to be revised. With the present price it is highly likely that the industry would ultimately not be able to attract most of its smallholder clients. If this happens, there would be no choice except resorting to reconstituted milk which would in fact defeat the import substitution and export promotion goals of the government.

66. Producer cooperatives have shown very little or no measurable success primarily due to the undesirably high degree of government intervention. In the future farmers should be allowed to exercise their freedom to participate at grassroots level in generating project ideas, designing, implementation, monitoring and evaluation. This, however, should not necessarily imply that government support is not desirable, but it means that the government should have more of a facilitative role than one which involves it in major direct production activities.

67. In order to develop a viable and sustainable, as well as a replicable group farming system, priority should be placed on applied research that would serve as a basis for formulating appropriate policies. More specifically, the research should focus on systems of production, processing, marketing and credit. In the light of the recently declared "Mixed Economy" policy, the author strongly feels that a new livestock development strategy is desirable for a meaningful intervention. Concerted efforts of the MOA, AIDB, International Livestock Center for Africa (ILCA), the Food and Agricultural Organization (FAO), and IFAD can be expected to help generate a workable system.

REFERENCES

- Agricultural and Industrial Development Bank (AIDB). 1976-1989. Credit operations. Internal reports. Addis Ababa.
- AIDB. 1989. IFAD agricultural credit project. Quarterly Progress Report, October 1-Dec. 31, 1989. Report No. 23., Addis Ababa.
- Animal and Fisheries Resources Development Department (AFRDD). 1986. Cattle breeding policy in Ethiopia (draft). Ministry of Agriculture (MOA), Addis Ababa.
- Anteneh A. 1989. The role and performance of livestock in Ethiopia. Paper prepared for the Third National Livestock Improvement Conference, May 1989. Manuscript. ILCA, Addis Ababa.
- Anteneh A, Sandford S and Berhanu A. 1988. Policy, finance and technology in livestock development in sub-Saharan Africa: Some critical issues. ILCA Bulletin 31:2-13.
- Assefa T. 1989. An economic analysis of cooperative farming in the highlands of Ethiopia with special emphasis on mixed farming systems. Techn. Univ. Berlin (West), Ph. D. Dissertation. Wiss. Verl. Vauk, Kiel.
- Commercial Bank of Ethiopia (CBE). 1983-1988. Annual reports. Addis Ababa.
- Dairy Development Enterprise (DDE). 1988. Annual report. Addis Ababa.
- FAO. 1988. Production Yearbook 1988. Rome.
- FAO. 1987. Trade Yearbook 1987. Rome.
- Gryseels G and Asamenew G. 1985. Links between livestock and crop production in the Ethiopian highlands. ILCA Newsletter 4 (2): 5-6. ILCA, Addis Ababa.
- Jahnke H.E. 1982. Livestock production systems and livestock development in tropical Africa. Kieler Wiss. Verl., Kiel.

Ministry of Agriculture (MOA). 1989. An overview of NGO-funded projects. Project Coordinating, Monitoring and Evaluation Dept., MOA, August 1989. Addis Ababa.

The Office of the National Committee for Central Planning (ONCCP). Annual budget documents. Several years. Addis Ababa.

Planning and Programming Department (PPD/MOA). 1984. General agricultural survey. Preliminary report 1983/1984, Vol. 1. Addis Ababa.

Relief and Rehabilitation Commission (RRC). 1989. Assessment of livestock investment (draft report). Addis Ababa.