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WORLD BANK TECHNICAL PAPER NUMBER 134

# **Animal Health Services in Sub-Saharan Africa**

## **Initial Experiences with Alternative Approaches**

Cornelis de Haan and Solomon Bekure

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Washington, D.C.

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FOREWORD

The 1985 World Bank Technical Paper " Animal Health Services in Sub-Saharan Africa; Alternative approaches" identified the deteriorating quality of the animal health delivery systems as a key constraint to the successful development of the livestock sub-sector. The paper recommended increasing cost recovery for services rendered and inputs provided, easing of the monopoly restrictions on many government tasks and encouragement of private sector involvement as promising alternative approaches to improve the quality of the service.

This paper "Animal Health Services in Sub-Saharan Africa; Initial Experiences with Alternative Approaches" reviews the initial experiences with these reforms. This document outlines first the type of reforms introduced over the last decade. Second, it summarizes past experiences in each categories of reform, i.e. cost recovery for services rendered, liberalization of drug imports and supplies and privatization of clinical veterinary interventions. Third, it reviews the effect of the institutional changes introduced simultaneously in public animal health services. Finally, it provides a preliminary assessment of the impact of the different measures and draws a number of lessons to be taken into account in future policy adjustments and project investments.

It is hoped that this document will provide policy planners from the Ministries of Agriculture and Finance, directors of Livestock Services and representatives of the donor community additional elements on which to base their decisions when planning the necessary structural changes, and that this document will give a new impetus to the discussion on the improvement of the quality of the veterinary and livestock extension services provided for African livestock producers.



Michel Petit

Director

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#### ACKNOWLEDGMENTS

This World Bank Technical Paper reviews recent experiences with alternative forms of animal health services in Sub-Saharan Africa. It is for officials and decision makers in regional governments and international agencies concerned with the planning and budgeting of animal health care. It is not a policy paper or a definitive statement on the subject, but is intended as a contribution to the discussion on appropriate strategies for improving animal health care in Sub-Saharan Africa.

The paper incorporates valuable comments made during a two-day "brainstorming session" in June 1989 in Washington by a panel of experts consisting of Dr. Samson Chema, Deputy Director, Kenya Agricultural Research Institute; Dr. Michael Creek, FAO/CP, FAO; Prof. David Leonard, Department of Political Science, Institute of International Studies, University of California; Mr. Steven Sandford, Head, Livestock Economics Division, International Livestock Center for Africa; Dr. Amadou Sidibe, Coordinator, OAU/EEC Pan African Rinderpest Campaign for West Africa; and Dr. Georges Tacher, Director General, IEMVT.

The authors acknowledge the contributions of Dr. Preben Haugaard (consultant veterinarian), who, with funding from the Danish Trust Fund, reviewed field experiences with alternative animal health care systems in several West African countries, and of Mr. Madani Tall (research assistant), who collected most of the background documentation. However, the responsibility for the final content of this report rests with the authors and should not be attributed to the panel, or to the other collaborators, or to the World Bank or its affiliates.

## ABSTRACT

Livestock diseases remain one of the principal causes of the ever widening gap between the supply and demand for meat and milk in Tropical Africa, now estimated to reach 2-5 million tons of meat and 10-15 million tons of milk by the year 2000. Technologies are available to control the main diseases, the key constraint lies in the deteriorating quality of the animal health delivery system. Following a number of consultations between the heads of African veterinary services and donor representatives in the early eighties a set of alternative policies to improve these delivery systems were identified and have-- in varying degrees--been introduced in most Sub-Saharan African countries.

This paper reviews initial experiences with the introduction of these alternatives policies in the four main reform categories (i.e. cost recovery for services rendered, institutional changes, liberalization of drug supplies and privatization of clinical veterinary interventions).

The paper concludes that, while all reforms have not been met with the same level of enthusiasm, the greatly changed attitude of Africa's heads of veterinary services, who now fully recognize the need to identify alternatives and be innovative in the search for more sustainable systems, is probably the most encouraging result of the ongoing policy dialogue, and augurs well for the future. Experiences with individual reforms include:

- (a) Cost recovery for curative services is probably the reform most widely introduced. Initial experience shows that such cost recovery improved the total availability of the service, even for the poorer groups. The results with cost recovery for cattle dips and artificial insemination is less encouraging. Cost recovery for preventive interventions (vaccinations) is less wide spread, especially for the highly contagious diseases like rinderpest, which have a strong public good element. Different administrative arrangements for the management of revenues from cost recovery are discussed;
- (b) The attempt at public sector reform have yet to make their impact. In the last decade, the total number of livestock staff in the 20 countries reviewed, jumped from 13,000 to 25,000, and many countries now approach staffing levels commonly found in highly productive temperate livestock farming. The impact of these staff increases on the operational efficiency of the service are reviewed on a regional and country basis.
- (c) The liberalization of drug supply seems to improve the availability of the drugs significantly. The transfer of the responsibility for the distribution to producers organization is recommended as one of the most attractive alternatives. A significant problem in many countries is posed by currency controls and high inflation, which depletes project revolving funds and severely restricts the availability of drugs. The issue of excess vaccine production capacity in Sub-Saharan Africa is being reviewed; and

- (d) Considerable favorable experience has been gained in the privatization of basic animal health care, using para-professionals. On the other hand, self-employed professionals common in other parts of the world are still rare in Sub-Saharan Africa. Linkage between the two groups are still weak. The reasons for this lack of success in the development of private professional veterinary care are analyzed and their project design implications highlighted.

Thus while some encouraging results are obtained, especially in cost recovery, drug distribution and the use of para-professionals, any definite claim of success would be premature. However, it seems that if this course is continued and supplemented with other technologies in the area of improved feeding and management the sector should be able to alleviate the huge meat and milk deficit projected for SSA in the twenty-first century.



ACRONYMS

|       |   |
|-------|---|
| ADF   | African Development Fund  |
| AfDB  | African Development Bank  |
| AI    | Artificial Insemination   |
| Bank  | The World Bank  |
| CAR   | Central African Republic  |
| CCCE  | Caisse Centrale de Coopération Economique   |
| CPBB  | Contagious Bovine Pleuro-Pneumonia  |
| EDF   | European Development Fund   |
| EEC   | European Economic Commission  |
| ERR   | Economic Rate of Return   |
| FAC   | Fonds d'Aide et de Coopération (Aid and Cooperation Fund)                           |
| FAO   | Food and Agriculture Organization of the United Nations                             |
| FMD   | Food and Mouth Disease  |
| FNEC  | Fédération Nationale d'Eleveurs Centrafricains                                      |
| GTZ   | Deutsche Gesellschaft für Technische Zusammenarbeit (Technical Cooperation Service) |
| IBAR  | Inter African Bureau for Animal Resources   |
| IBRD  | International Bank for Reconstruction and Development                               |
| IDA   | International Development Association   |
| IEMVT | Institut d'Elevage et de Médecine Vétérinaire des Pays Tropicaux                    |
| IFAD  | International Fund for Agricultural Development                                     |
| IFPRI | International Food Policy Research Institute  |
| LDF   | Livestock Development Fund  |
| NGOs  | Non-Governmental Organizations  |
| ODA   | Overseas Development Association  |
| ODM   | Overseas Development Ministry of the UK   |
| OAU   | Organization of African Unity   |
| PARC  | Pan African Rinderpest Campaign   |
| PPR   | Peste des Petits Ruminants  |
| SSA   | Sub-Saharan Africa  |
| TCR   | Tissue Culture Rinderpest Vaccine   |
| VLU   | Veterinary Livestock Unit   |



ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA  
INITIAL EXPERIENCES WITH ALTERNATIVE APPROACHES

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ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA  
INITIAL EXPERIENCES WITH ALTERNATIVE APPROACHES

CHAPTER I

BACKGROUND

1. With the population of Sub-Saharan Africa (SSA) growing at the rate of 3.1 percent per year and meat and milk lagging behind at 1.4 and 2.3 percent, by the year 2000 the countries of this region will be importing 2-5 million tons of meat and 10-15 million tons of milk, at a cost of about US\$15 billion in scarce foreign currency reserves (FAO, 1982; IFPRI, 1985). To boost production and ward off this huge deficit, the countries of SSA will have to push further their technical improvements in livestock feeding, management, and animal health services. The economic importance of such efforts is clear.

2. At present, livestock contributes approximately US\$14 billion per year to agricultural output in SSA. About US\$9 billion of this amount (or about 20 percent of the continent's agricultural GDP) is in the form of meat, milk and other livestock products, and US\$5 billion is in the form of natural fertilizer and draft power. In several nations (Botswana, Chad, Mali, Mauritania, Somalia), livestock is a major force in the economy. Experience in other parts of the world has shown that a vigorous livestock sector is an essential ingredient for overall agricultural development. In many areas, livestock is one of the most important sources of employment and cash income, which can be used to purchase inputs for crop production, and provides an outlet for surplus grain. Thus, it is safe to assume that African agriculture needs a healthy livestock industry to achieve optimum growth.

3. Unfortunately, livestock diseases stand in the way of such growth at present. Livestock mortality losses in SSA are approaching US\$2 billion per year, and the losses due to decreased growth, fertility, and work output as a result of disease are thought to be about as high (Annex 1). Furthermore, approximately 10 million square kilometers of land in SSA cannot be adequately used by livestock because of the prevalence of disease vectors such as the tsetse fly, which transmits trypanosomiasis (animal sleeping sickness). Also because of certain diseases, lucrative export markets like those of the European Community--which offer preferential prices for developing countries--remain closed to many countries of SSA.

4. Until recently, animal disease control in SSA was almost exclusively the responsibility of the public sector, but in the past few decades, the quality of its veterinary services has deteriorated. Operational problems have contributed significantly to this decline. In many cases, veterinary staff expanded much faster than the means of support, while escalating operating costs made it necessary to cut back on field services, whereupon staff became office-bound and morale plummeted. At the same time, the traditional leaders who wielded strong powers earlier and imposed on their herders' groups the discipline of vaccination lost some of their authority under new post-independence administrative arrangements, and the level of vaccination coverage declined even further.

5. In a related development, the demand for veterinary services has increased sharply. First, traditional herders have become more aware of the benefits of veterinary care, especially since the rinderpest outbreaks of the early 1980s, and are willing to pay for good veterinary services. Second, livestock ownership has become more diversified. Crop farmers, government officials, and traders all see livestock as one of the more profitable investment opportunities available in SSA. These new livestock owners recognize the importance of disease control in reducing the risk to their investment in livestock. However, they have no experience in livestock raising and therefore depend much more on outside assistance for veterinary care than traditional pastoralists do. Third, in the past decade an estimated 10-20 million cattle have moved into the humid disease-infested savannas from the semiarid rangelands, where the disease challenge is relatively low, and thus the demand for veterinary services in those areas has increased. Fourth, livestock prices have kept ahead of the cost of the main drugs used and therefore have made veterinary care more affordable. Demand can be expected to increase as the price of milk and meat continue to rise. This can stimulate further intensification of production, with more valuable cross-bred livestock pushing up the demand for veterinary services and justifying the higher expenditures involved even more.

6. Faced with dwindling resources and a growing demand, public authorities began looking for alternative ways of organizing and financing animal health care. New approaches were discussed in a number of workshops with the heads of SSA livestock services and representatives of donor agencies (Bujumbura and Blantyre 1984, Berlin 1985, Bangui, 1987). These new approaches (cost recovery and privatization of animal health services, liberalization of drug importation and distribution, retrenchment and freezing of staff recruitment) received support in a number of reports on animal health in SSA, which recommended cost recovery and privatization as attractive alternatives vis-à-vis the poorly functioning free public sector system (de Haan and Nissen, 1985; Anteneh, 1983, 1985; Leonard, 1984). Subsequently, several projects with alternative forms of animal health services were initiated in SSA. The preliminary results of these reforms are the subject of this report.

7. The principal concern in this discussion is animal health improvement, both because of its importance to livestock development and the experience that has accumulated in this field over the past five years. Other important trends in SSA livestock development (smallholder dairy development, pastoral associations and resource management, integrated crop/livestock extension services) are being reviewed in other World Bank studies. This report outlines the types of reforms introduced in animal health care over the past decade, summarizes past experiences in each category (cost recovery for services rendered, liberalization of drug supply, privatization of veterinary interventions), provides a preliminary assessment of the impact of the different measures, and indicates what lessons need to be taken into account in future policy adjustments and project investments. The discussion concentrates on Bank-supported initiatives, because of the leading role they have played in the reform effort and the accessibility of the data. This review has been prepared to assist decision makers from SSA governments and the donor community better plan the necessary structural changes and to encourage them to further improve the quality of the veterinary and livestock extension services provided for African livestock producers.

## CHAPTER II

### REFORMS IN SSA LIVESTOCK SERVICES: AN OVERVIEW

#### (i) Introduction

8. Animal health care services can be classified as private or public goods, depending on who receives the benefits (Leonard, 1984). At one extreme are purely private goods, which (a) only benefit the animal owner receiving the service; (b) can be enjoyed exclusively by that owner (the exclusion principle); and (c) when provided, exclude somebody else from that service (the rival principle). For example, clinical treatment for a wound or worms would qualify as a pure private good because (i) the treatment benefits only the owner of that animal; (ii) nobody else benefits; and (iii) carrying out the treatment excludes other farmers from the services of the veterinarian at that time. In contrast, services like quarantine and meat inspection are pure public goods as they do not directly benefit the owner of the animal and do not exclude other producers from that service.

9. As a general rule, the higher the private benefit, the more justified it is to have the beneficiary pay for the service directly and to transfer the service to the private sector. Public sector management of private good services is justified if economies of scale are an important consideration or if sophisticated expertise or equipment is needed. In such cases, the services should be financed through direct payment from the beneficiaries and not from general revenue. Pure public good services should be managed by the public sector (although subcontracting to private operators is always possible) and financed by the general public revenue. Activities such as food inspection approximate a purely public service and should therefore be financed and managed by public resources. The principal animal health tasks in SSA and their degree of public/private interest are listed in Table 1.

10. The reforms most widely adopted in animal health care in SSA since the early 1980s fall into the following categories:

- (a) increase in the degree of cost recovery for veterinary drugs, vaccinations, other inputs, and veterinary interventions;
- (b) reorganization of public services to correct the imbalance between staff and operating means and to strengthen these services in animal health control, policy planning, and livestock research and extension;
- (c) liberalization of veterinary drug import and distribution; and
- (d) transfer of responsibility for animal health care to private veterinarians, middle-level technicians, specially trained herder representatives (auxiliaries), and directly to herders.

11. The basic objective behind all four reforms was -- and still is -- to create, through cost recovery and liberalization, the appropriate

Table 1. Management and Funding of Common Livestock Services

|                         | Management |        | Payment       |          |
|-------------------------|------------|--------|---------------|----------|
|                         | Private    | Public | Beneficiaries | Treasury |
| Drug distribution       | ++         | -      | ++            | -        |
| Clinical interventions  | ++         | -      | ++            | -        |
| AI - semen production   | +          | ++     | ++            | -        |
| AI - insemination       | ++         | -      | ++            | -        |
| Dips                    | ++         | +      | ++            | -        |
| Vaccinations            |            |        |               |          |
| Compulsory              | -          | ++     | +             | ++       |
| Voluntary               | ++         | +      | ++            | -        |
| FMD <sup>a/</sup>       | -          | ++     | +             | ++       |
| Tsetse control          | -          | ++     | ++            | +        |
| Diagnostic support      | +          | ++     | +             | +        |
| Veterinary surveillance | +          | ++     | -             | ++       |
| Veterinary research     | +          | ++     | +             | ++       |
| Quarantine              | -          | ++     | +             | ++       |
| Drug quality control    | -          | ++     | -             | ++       |
| Food hygiene/inspection | -          | ++     | -             | ++       |
| Policy/planning         | -          | ++     | -             | ++       |
| Extension               | +          | ++     | +             | ++       |

++ Obligatory or highly justified

+ Possible

- Not justified or undesirable because of potential conflict of interest situations.

<sup>a/</sup> Foot and mouth disease vaccination in meat-exporting countries; in other countries, it is considered mostly private.

environment for the private sector to take over some of the veterinary tasks formerly carried out as public services. The concept was that once the government had delegated the "privatizable" veterinary tasks to the private sector, it could concentrate on those tasks that needed to remain in the public domain. To ensure that public agencies would carry out these tasks effectively, the reform package was to include institutional adjustments that would provide for adequate and continuous funding for their operations.

(ii) Donor Policies

12. These reforms have been strongly supported by the international donor community (see Annex 2). Since 1985, the total foreign commitment to these projects has amounted to approximately US\$600 million. This financing has been provided by the European donors: the European Development Fund (EDF), Technical Cooperation Service of the Federal Republic of Germany (GTZ), Aid and Cooperation Fund of France (FAC), Overseas Development Association of the United Kingdom (ODA), the World Bank and other international lending agencies, such as the International Fund for Agricultural Development (IFAD) and the African Development Bank (ADB).



13. Most EDF-financed projects are carried out in the framework of the Pan African Rinderpest Campaign (PARC), a US\$50 million Africa-wide campaign to provide support for the control of rinderpest. To be eligible for this support, the SSA government concerned is expected to implement a number of policy reforms to make the vaccination campaigns self-sustaining and alleviate some of the more serious distortions in the sector. To ensure that these campaigns are sustainable, the government is to establish a special fund (Livestock Development Fund) to be built up by revenues transferred directly from (a) import duties on animal products; (b) surcharges on veterinary drugs; (c) vaccination fees on other vaccinations; and/or (d) the payment of a lump sum by the producers, according to the size of the herd. The general policy dialogue is concerned with the size of the sector's budget, the privatization of services and distribution of drugs, the creation of producers' organizations, and the introduction of measures to control desertification. By the end of 1989, five countries had carried out PARC emergency campaigns and ten countries had positively responded to the policy dialogue and were receiving PARC aid to carry out rinderpest vaccinations and to implement an animal health reform program. Financing agreements for another nine countries had been prepared and were awaiting EDF approval.

14. The overall objective of most GTZ-financed projects is to develop a basic animal health care system organized around veterinary auxiliaries, who are trained and equipped to provide simple animal health care. These projects often cover only a part of the country. GTZ finances the necessary equipment, training and revolving funds for the auxiliaries. Typical examples of this type of intervention can be found in Chad and Somalia. In addition, supplementary support is often provided for veterinary diagnostic laboratories and the national veterinary pharmaceutical company may receive free donations of drugs.

15. FAC's assistance is mainly for strengthening livestock research, extension, and planning services at the national level in francophone SSA countries. FAC strongly supports the development of private veterinary services. It (a) provides sector ministries with direct technical assistance in policy and planning; (b) carries out free-standing projects in animal health and production (e.g., village poultry health programs in Burkina Faso; dairy development in Madagascar, Mali, and Senegal; extension in Côte d'Ivoire) and research frequently geared toward small ruminants (Chad, Côte d'Ivoire, Senegal, and Central African Republic (CAR)); and (c) participates with other donors, especially the World Bank, in national livestock projects through the provision of technical assistance. In this last category, FAC provides essential support for Bank-funded livestock projects in the Cameroon, CAR, Chad, Guinea, Niger, and Zaire.

16. The World Bank-funded livestock projects generally combine policy reforms and investments. The policy adjustments in the animal health domain seek to create the environment (through the liberalization of input supply and cost recovery for services provided by the government) that will enable the private sector to take over the majority of the "privatizable" services hitherto provided by the public sector. The purpose of the investment component is to strengthen the remaining public services--in policy planning, research, training, and extension--by providing funds for institution building and the rehabilitation of equipment and other infrastructure. Other types

of adjustments in Bank-funded livestock operations are reforms in pricing, marketing, and land tenure and resource management.

17. In the past five years, Bank-funded livestock projects have devoted increasing attention to improving animal health. Up to 1983, World Bank support for livestock-only projects in SSA amounted to about US\$350 million, of which US\$60 million (17 percent) was earmarked for improving animal health. Since then the Bank has approved 11 livestock-only projects (Annex 3) with a total outlay of US\$465 million, of which US\$185 million (40 percent) was for the improvement of animal health. The increase in the proportion spent on animal health has been greatest in Eastern and Southern Africa, as can be seen in Table 2.

Table 2: Share of Animal Health Spending in Bank-Funded Livestock Projects

| <u>Region</u>               | (US\$ Million)             |                           |                            |                           |
|-----------------------------|----------------------------|---------------------------|----------------------------|---------------------------|
|                             | Till 1983                  |                           | After 1983                 |                           |
|                             | <u>Amount in Livestock</u> | <u>% in Animal Health</u> | <u>Amount in Livestock</u> | <u>% in Animal Health</u> |
| West Africa                 | 127                        | 25                        | 298                        | 32                        |
| Eastern and Southern Africa | 220                        | 13                        | 167                        | 55                        |

In addition, the Bank's current (1989) SSA agricultural portfolio contains 43 projects in which livestock is a component of a wider agricultural project.<sup>1/</sup> The total cost of this component was estimated at US\$176 million, of which US\$110 million was earmarked for animal health improvement, bringing the total expenditure for animal health improvement in ongoing Bank-funded projects to about US\$300 million <sup>2/</sup>.

18. The Bank's future lending programs will continue to emphasize strengthening animal health institutions in both the public and private sector by combining policy reforms with investments. Of the 11 livestock-only projects programmed <sup>3/</sup> for 1990-1993 in SSA, 6 would have a national scope and would emphasize institution building in animal health and livestock extension.<sup>4/</sup> In addition, livestock services could get an additional boost

<sup>1/</sup> The situation as of end 1989.

<sup>2/</sup> The performance of these projects is given in para. 75.

<sup>3/</sup> Since mid-May 1989, the number of livestock projects in the pipeline has been reduced.

<sup>4/</sup> Sudan (FY90), Madagascar (FY91), Nigeria, Ghana and Somalia (FY92), and Kenya (FY94)

from the renewed emphasis on agricultural research and extension in the World Bank's Agricultural Services Initiative, which was recently expanded beyond its initial goal of improving crop services to include livestock research and extension activities.

### CHAPTER III

#### INITIAL EXPERIENCE WITH ANIMAL HEALTH SERVICES REFORMS:

##### AN INTRODUCTION

19. One of the most encouraging results of the animal health policy reforms of the past decade is the greatly changed attitude of the heads of veterinary services toward cost recovery and the privatization of animal health services. Whereas the first proposals were met with considerable skepticism, now many decision makers are convinced that alternative delivery systems must be identified if veterinary services are to improve. This is a result of a growing realization of the need for adjustment and better appreciation of opportunities for private animal health care. Although the early workshops on this subject (see, e.g., Bujumbura, 1984) recognized that privatization would bring some improvements, they still stressed government control. It was not until later high-level meetings (e.g., OAU/IBAR meeting of SSA Livestock Ministers in Addis Ababa, 1987) that policy makers recommended that the government withdraw from "privatizable" veterinary tasks.

20. However, not all policy adjustments have been met with the same enthusiasm, nor has the reaction been the same at all staff levels. For example, the policy of cost recovery for drugs and noncompulsory vaccinations was widely accepted, but not cost recovery for compulsory vaccination. Whereas in 1980 about 50 percent of a group of 18 West and Central African countries were providing all vaccinations and treatments free (IEMVT), by 1988 they had all introduced some degree of cost recovery (see Annex 3). Similarly, Sudan and Somalia have changed their policy of free services, and the principle of cost recovery is now also fully accepted in all Eastern and Southern African countries. Chabeuf (1990) reported that of the 31 SSA countries he surveyed in 1990, 25 had a policy of full payment for veterinary drugs, 23 for non-compulsory vaccinations and 15 for clinical interventions. Similarly, drug imports and distribution have been liberalized in many areas. Of the 29 countries surveyed by Chabeuf (1990), only 11 maintained a government monopoly on drug imports, and only 7 maintained a government monopoly for the distribution. (see also Annex 3).

21. In the case of compulsory vaccinations, however, few countries require full cost recovery, although progress has been made over the past decade and eight SSA countries now require beneficiaries to make some direct payment for these vaccinations. But most countries provide the compulsory vaccination free of charge. One of the more sensitive issues in the initial phases of the adjustments was whether to consolidate or even reduce government staff, but many countries have begun to recognize the need for this measure and it has been included in the adjustment operations in eight countries. As for the response to privatization at different staff levels, a subjective assessment seems to indicate that acceptance has been greatest among senior policy makers and at the producer's level. Many middle-level technicians have also demonstrated a keen interest in the possibilities of privatization. The response was more uneven among professional and lower-level support staff,

who seem to perceive the package of policy adjustments as a threat to their individual interests. The remainder of the report provides information on individual policy reforms.

## CHAPTER IV

### COST RECOVERY FOR SERVICES RENDERED

#### (i) Background

22. To protect emerging private initiatives from unfair competition, it is essential for governments to introduce a system of full cost recovery for its services. This is an important step in any effort to privatize animal health care because it will enable the government to reduce its financial burden, make the service sustainable and eventually independent of outside (international) financing, and ensure that the service is efficiently used by the beneficiary and not wasted. The justification for cost recovery becomes stronger as the private benefit of the services increases.

23. Indeed, partial or full cost recovery is probably the reform most widely introduced in SSA veterinary services over the past decade and now figures prominently in the animal health programs of almost all SSA countries. This comes from a growing awareness that the producer is quite willing to pay for good services and that additional income must be found for these services since national budgets throughout SSA are under the pressure of financial austerity. A willingness to pay was apparent in all the Bank-funded projects surveyed for this report. Moreover, after a payment system was introduced, the demand for veterinary services did not decline in these projects.

#### (ii) General Impact

24. On the contrary, the total availability of the services improved markedly and poorer people gained greater access to the services when cost recovery was introduced. A case in point is Kenya, which had free veterinary care in the 1970s and then turned to a more commercially oriented system in the 1980s (Leonard, 1984). When staff began charging for their curative visits, the work output increased significantly, inequality in distribution was reduced by at least one-half, and the more fully commercialized veterinary staff graduated their charges according to the recipient's ability to pay. For example, the wealthier farmers were charged an average of about 40 percent more than the poorer farmers. The positive effect of cost recovery is also evident in the CAR. Household data collected in the framework of CAR's Bank/IFAD/ADF funded First Livestock Project show that once full pricing was introduced, drugs became more available, especially among the poor, who purchased, on average, 50 percent more drugs per animal than the wealthier livestock producers.

#### (iii) Vaccinations

25. The decision whether to charge for vaccinations generally depends on the nature of the disease. Thus the beneficiary is generally required to make some direct contribution in the case of voluntary vaccinations that protect animals against less contagious diseases of little threat to the national herd should an outbreak occur (the theiluric diseases, anthrax, blackleg and pasteurellosis, FMD in non-meat exporting countries, and all

poultry vaccinations). This contribution is generally on the order of US\$0.05-US\$0.25 per vaccination, which covers the vaccine and some of the other variable costs (fuel and per diem of vaccinators; see para. 50). But to cover all costs, including staff salaries, the charge per vaccination would have to be about US\$0.50. Several Bank-funded projects (e.g., in Cameroon, Chad, and Kenya) have included specific cost-monitoring exercises and annual adjustments of the fee in the respective legal project documents, but no information is yet available on the results or the level of implementation of such cost adjustment programs.

26. Most compulsory vaccinations for rinderpest and CBPP (and FMD in the meat-exporting countries of SSA) are financed fully out of general taxes and provided free 5/. However, the private benefits of these vaccinations seem significant enough to ask for a direct contribution from producers. As a general guideline, the World Bank recommends a 50-50 sharing between beneficiary and the state, which is the agreed upon arrangement in most Bank-funded projects. Although incomplete, initial data on 10 countries seem to corroborate the effectiveness of this approach, as no depressing effect could be found from cost recovery: rinderpest vaccination coverage in the five 6/ countries that had introduced a vaccination fee was 58 percent, and in those countries 7/ that had maintained a free vaccination policy it was 60 percent, which is not much higher. These findings are not too surprising as sociological research in several countries has shown that producers are quite willing to pay for good services and that even where the vaccinations are officially free the producer is (illicitly) made to pay. Although the Bank calls for some degree of cost recovery for compulsory vaccinations, it is also generally acknowledged that other reforms (cost recovery for voluntary vaccinations and all clinical interventions) are of higher priority and should be pursued first.

(iv) Cattle Dips

27. Ticks and tick-borne diseases (especially East Coast fever in East Africa) are treated by cattle dips, which produce predominantly private benefits. If participation is low, however, the population of ticks resistant to the acaricide may increase and pose a threat to all farmers, including those participating in the program. There is thus a public element in a dipping program. While dipping is economic and essential in intensive production systems using exotic crosses, its economic justification in extensive production systems is becoming doubtful. Study results in the First Central African Livestock Project indicated that an average investment of US\$15 per

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5/ This policy, shared by most donors (including PARC) is justified on the grounds that adequate control cannot be maintained unless a high percentage of the cattle population is immunized, which can only be done if the vaccination is provided free of charge. During the 1983-1985 period, this policy was the object of considerable debate between the Bank, which favored cost recovery and other donors, notably the PARC, which advocated free vaccinations.

6/ Burkina, Cameroon, CAR, Mali, and Mauritania.

7/ Benin, Chad, Côte d'Ivoire, Ghana, and Senegal.

head (which equals the annual revenue per animal) and a recurrent annual charge of US\$2 per head would be necessary to recover all costs, including depreciation. But this was more than the herders were willing to pay, and the program was discontinued. In the Bank-financed Ituri Project in Zaire, newly established dips had an ex-post economic rate of return (ERR) of 0 to 15 percent because of the high investment costs, and the treatment produced little change in productivity. Studies undertaken during the preparation of the Kenya Animal Health Project (1986) indicate that an increase of Ksh 0.30 to Ksh 1.50 per animal per dipping would be necessary to make the dips self-financing, and the mortality figures would have to drop from 10 to 8 percent per year to justify this fee increase. This reduction is probably feasible in the heavily infested East Coast areas, but not elsewhere.

28. Cost recovery for dipping services has been disappointing in terms of regularity and numbers dipped, but these results may be due in part to an increase in hand spraying. In Kenya, a dipping fee created a disincentive for regular and widespread dipping, which was not overcome by making the dipping compulsory (Sandford, 1983). Meanwhile, Zimbabwe authorities argue that their strictly enforced compulsory dipping program is a success because it is free. Under the Uasin Gishu Project in Kenya (financed by IFAD and the Danish government), however, farmers are clearly willing to pay for dipping services--especially for crossbred animals--provided these services are guaranteed to be effective. A fixed fee per head to cover all dippings over a longer period seems to produce better revenues and herder participation than a system of payment per dipping. This was the case in the Central Province in Kenya, where revenues doubled after a lump sum for four months per animal was introduced; also, the leakage of funds stopped once dip attendants were no longer required to handle small amounts of money continuously. Therefore, because of these disappointments in profitability and payments, the best strategy seems to be to use simpler means (knapsack sprayers), until more modern control techniques are available. Several promising techniques are being developed such as acaricides with a long residual effect that can be applied directly on the skin or vaccines against the tick-borne diseases. The World Bank has stopped financing the construction of new dips, although several Bank-financed projects are still involved in rehabilitating existing facilities, and the emphasis there is on cost recovery and the privatization of the management (para. 68).

(v) Artificial Insemination

29. Although the public good element of artificial insemination (AI) is quite small, cost recovery for this service has not yet reached a reasonable level. This is partly because AI has only recently been introduced in SSA. During the first years, the cost per farmer of a daily AI run, with only a handful of farmers participating, is excessive, and some initial subsidy is unavoidable while demand builds up. However, it has proved difficult to phase out the subsidy after the initial phase. According to calculations in Kenya (1986)--the only SSA country in which the World Bank finances AI--the real cost per insemination varies from Ksh 20 to Ksh 250, depending on the livestock density of the region, but the government charges only Ksh 4 per insemination. Farmers have obviously been willing to pay more than Ksh 4 as private veterinarians were recently charging Ksh 30 per insemination. But in many regions the real cost price through government services was still substantially higher than the farmer was willing to pay. Consequently, a profitable, self-



standing AI service is not likely to materialize in the medium term, except in areas of high density and intensive production, where transport costs are shared with fixed clinical runs and on some private "elite" farms that are breeding bulls to be sold for natural mating.

(vi) Administrative Aspects of Cost Recovery

30. A condition recommended by many external donors is that the government transfer the revenues generated by the cost recovery measures to a special account or revolving fund, frequently called a Livestock Development Fund (LDF), which is to be managed by the livestock service. In this way, livestock services can become independent from the sometimes erratic central budgeting process and cumbersome system of financial control. Thus the flow of funds becomes more stable and this ensures that veterinary services will be sustained over the long term. External donors often invoke the sustainability argument when trying to persuade governments to establish such a fund, but finance ministry officials usually respond that it is far more efficient to transfer all revenues to the central treasury, where they can be allocated across all sectors. Although the Bank generally supports the centralized allocation of resources, decentralized LDFs have been included in a number of recently approved Bank-funded projects on the grounds that (a) the revenues for these funds are fees for services rendered and not taxes, which would be the finance ministry's prerogative; (b) there is a direct relationship between expense incurred and revenue collected; and (c) it motivates staff to collect the fee and users to pay the fee, because there is a direct return in the form of more means to operate and better services rendered.

31. The same efficiency arguments could lead to a further decentralization of the administration and use of funds generated by cost recovery, for example, to the provincial level. The World Bank's Human Health Policy Paper argues for such a further decentralization as it would (a) help improve the utilization of resources since local staff generally have a better idea of the needs of their unit than some remote planner at headquarters; (b) encourage wider community participation in development activities; and (c) help bring down administrative costs, inasmuch as any shift to a higher level of revenue collection increases the administrative load, and the savings could be used for other productive purposes. 8/

32. At the same time, the efficiency gains expected from decentralization need to be balanced against the possibility of leakage. Experience has shown that recovery tends to be low and that revolving funds become rapidly depleted under a decentralized system of administration (i.e., at the level of the vaccination yard, dip, or veterinary post). 9/ This is clearly shown in many externally financed projects in the dismal performance of veterinary pharmacies

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8/ "Financing Health Services in Developing Countries; An Agenda for Reform." World Bank Policy Study. Washington, D.C., 1987.

9/ An exception is the cost recovery for rinderpest and CBPP vaccinations in the Central African Republic, where all revenues are collected by herder representatives under a double accounting system (herder representative/livestock service staff) and 85-95 percent recovery was achieved.

operated by livestock posts. Therefore it seems prudent to keep administrative functions at an intermediate (i.e., provincial) level, where adequate control can be maintained and ample motivation provided for local participation. As more emphasis is placed on cost recovery, project designers may find it necessary to give increasing attention to the administrative management and control of cost recovery revenues.

33. LDFs now exist in six countries of SSA. <sup>10/</sup> Some have chosen to supplement the income of their LDF with revenue from specially earmarked taxes, such as a market tax (e.g., US\$3 per head sold in the CAR); a 7 percent surcharge on drugs and feed, as in Mauritania; or the revenue generated by a tax on imported meat, as in Cameroon (which puts 50 percent of the 65 percent import levy in the LDF and the other 50 percent in the Treasury) and Togo. In this case, there is no longer a direct link between services rendered and revenue generated, and the argument for a decentralized financial management becomes less relevant. Most of the LDFs operate at the national level, except in Cameroon, which has created three provincial LDFs. Thus far, experience with these LDFs has been positive: revenues are in the range of US\$100,000-500,000 per year, and some LDFs have become important operating tools of livestock services in the countries concerned. The accounts have by and large been certified by external audits. However, LDFs have not yet had an opportunity to operate after external financing (and external protection) has ended. Once that happens, the political pressure to reintegrate the revenues in the eternally cash-strapped Treasury will be stronger, but the need for these funds will also be much greater.

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<sup>10/</sup> Cameroon, Chad, Central African Republic, Guinea, Mauritania, and Togo.

## CHAPTER V

### PUBLIC SECTOR REFORMS IN ANIMAL HEALTH CARE SERVICES

#### (i) Background

34. One of the main reasons for the declining performance of veterinary services in SSA during the 1960s and 1970s was the rapid increase in personnel costs at the expense of non-salary recurrent funding (de Haan and Nissen, 1985; Anteneh, 1983, 1985). From 1960 to 1976, veterinary service personnel costs in West Africa increased an average of 7 percent per year, whereas non-staff recurrent expenditure increased by only 3 percent per year. As a result, the salary/non-salary ratio, one of the predominant indicators of the efficiency of a livestock service, dropped from 64/36 in 1960 to 75/25 in 1976 in West Africa, and, for example, from an excellent 40/60 in 1974 to a poor 70/30 in 1981 in Kenya. In contrast, in Southern Africa the ratio remained close to the 50/50 optimum over the same period.

35. Since the early eighties, several countries in SSA have begun to introduce institutional reforms to address this problem, by (i) stabilizing or reducing staff in government service; (ii) establishing LDFs (para. 30-33); and (iii) increasing direct government contributions to complement non-salary operating funds. The effect of these programs has been assessed by comparing staffing and budget data from 20 countries 11/ (of which 8 had started to implement institutional reform programs during 1985-1989; see Annex 5) 12/ with data on the same countries in earlier studies (Annex 6).

#### (ii) Recent Trends in Staffing

36. The results of this study indicate that, while staff numbers in some countries have levelled off, they have in aggregate continued to grow over the past decade. The total number of livestock service staff in the 20 countries surveyed jumped from just over 13,000 staff in the mid-1970s to more than 25,000 in the second half of the 1980s. As a result, the average number of Veterinary Livestock Units (VLUs) 13/ per veterinarian has declined from almost 90,000 in the mid-1970s to just over 50,000 today, and the number of

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11/ These 20 countries were selected mainly because of the availability of recent budget and staffing data; however, they cover the different regions, include countries with high and low livestock/human population ratios, anglophone and francophone countries, and poor and wealthier nations. Together they represent about 60 percent of SSA's total livestock population.

12/ Burkina, Cameroon, CAR, Chad, Ghana, Guinea, Mali, and Senegal in West Africa, and Kenya and Somalia in East Africa.

13/ The Veterinary Livestock Unit (VLU) is an animal unit, introduced to aggregate the work requirements for animal health care of different livestock species. One VLU corresponds to 1 cow or 1 camel or 2 horses or 2 pigs or 2 donkeys or 10 small ruminants or 100 poultry.

VLUs per middle- and lower-level veterinary assistant has dropped from 10,000 in the mid-1970s to about 7,000 now. Overall growth has been the same in the different regions, although in West Africa growth has been particularly strong in the professional category, whereas in Eastern and Southern Africa staff growth has occurred mainly in the support category (see Table 3).

Table 3. Government Professional and Support Staff Ratios  
(VLU per staff) in the Different SSA Regions  
Thousands of VLUs per Person

| <u>REGION</u>                | <u>Professional Staff</u> |                  | <u>Support Staff</u> |                  |
|------------------------------|---------------------------|------------------|----------------------|------------------|
|                              | <u>mid-1970s</u>          | <u>mid-1980s</u> | <u>mid-1970s</u>     | <u>mid-1980s</u> |
| Western Africa               | 95                        | 30               | 7                    | 4                |
| Eastern & Southern<br>Africa | 120                       | 80               | 14                   | 6                |

37. These staff levels exceed the 200,000 VLUs per professional staff and 12,000 per support staff recommended (SEDES/GTZ 1980; Sandford, 1983) for the preventive tasks to be carried out by the public sector in extensive production systems. Similarly, the overall professional/support staff ratio, although it has remained at about 1:9 for the past 10 years, exceeds the generally accepted standards of about 1:20 for very extensive systems and 1:10 for more intensive systems. The higher share of professional veterinarians and zoo-technicians is especially pronounced in some of the West African countries and exceeds normal efficiency levels.

38. Nonetheless, substantial differences persist between countries. At the one extreme are some of the East African countries (Ethiopia and Somalia), which have more than 300,000 VLUs per professional staff and thus do not even meet the minimum requirements for extensive systems; at the other extreme are some West African countries (Côte d'Ivoire, Ghana, and Senegal) with very dense coverage of 20,000 VLUs, or less, per professional staff. The number of VLUs per support staff varies between countries from a high of 13,000 to a low of 900.

39. No correlation was found between the number of VLUs per staff member and the importance of livestock to the economy; countries with a high share of livestock in the agricultural GDP had the same coverage as countries with a less important livestock sector. The status of the economy seems to have had some effect on staff resources allocated to the sector; countries with a per capita GDP of more than US\$800 (IBRD countries) had denser coverage in professional and support staff than the countries below the US\$800 per capita income level (IDA countries).

(iii) Budget and Finances

40. Budgetary trends of the veterinary services look favorable on an aggregate basis. From 1975 to 1985-88, the recurrent budget of the 16

livestock services for which data were available (Annexes 5 and 6) increased from US\$47 million to US\$98 million (in current prices) which represents growth of 110 percent, while staff members grew by 100 percent. The growth was relatively strong in West Africa, where the total budget increased from US\$15 million in 1975 to US\$47 million in the second half of the 1980s, but was less pronounced in East and Southern Africa, where the budget increased from US\$32 million to US\$52 million. The lower growth in East Africa is due in large part to exchange rate adjustments as budget figures were calculated in U.S. dollars using in the 1970s the overvalued official exchange rates, viz a viz more realistic rates in the 1980s. The budgets of the West African veterinary services of the--exclusively CFAF--countries in the review were less affected by exchange rate adjustments. In West Africa, total salary expenditure increased from US\$11 million to US\$29 million, or about 10 percent per year, whereas non-salary operating costs increased from US\$4 million to US\$15 million, or about 15 percent per year. This trend shows the reverse of the growth pattern in 1961-75, the period in which salary costs in West Africa increased by 7 percent and non-salary operating costs by only 3 percent. Thus, the serious deterioration in the salary/non-salary ratio of the 1970s appears to have been checked. In East and Southern Africa the salary and non-salary budgets (never a major issue) continued to grow about at a rate of 6 and 7 percent, respectively. However, the salary growth rate of 6-10 percent per year is not enough to keep up with inflation and staff growth together, and points to a salary reduction in real terms.

41. In any case, these aggregates must be treated with caution as the rather high figures are almost exclusively from countries with the strongest economies (per capita GDP of more than US\$800 <sup>14/</sup>), whose livestock service budgets increased by an average of 16 percent from 1975 to 1985. The livestock service budgets in the poorer countries increased by only 1 percent. Although part of this stagnation might again be due to exchange rate movements, it does point to the serious financial position of many services in the poorer SSA countries.

42. Salary/Non-salary Ratio. As a result of these trends, the salary/non-salary budget ratio, a key indicator of the efficiency of the livestock services, remained about the same, although again it varied greatly from one country to another.

- (a) In West Africa the regional average improved from 75:25 in the 1970s to 65:35 in the 1980s, but this improvement is largely due to the change in Côte d'Ivoire, which moved from a ratio of 70:30 in 1975 to 35:65 ratio in 1986. If Côte d'Ivoire is excluded from this calculation, the average ratio in the nine remaining countries remains at a poor 75:25. Three countries improved, but 4 of the 10 countries under consideration remain in the very poor 85:15 range, where it is impossible to provide effective service.
- (b) In Eastern and Southern Africa the average ratio declined from a very good 50:50 in the mid-1970s to a still acceptable 55:45 in the mid-1980s. However, this average is mainly based on the good budget allocations of Zimbabwe and Kenya and does not include some of the

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<sup>14/</sup> Botswana, Cameroon, Côte d'Ivoire, and Zimbabwe.

countries with less favorable budget allocations, like Sudan, Somalia, and Madagascar. Furthermore, Zimbabwe recently expanded its activities in the communal areas, with the result that the ratio in this country has deteriorated. This would also affect the overall average.

43. In summary, the public sector livestock institutions in a sample of 20 SSA countries doubled their staff over the past decade. In most countries, staff levels are adequate or more than adequate to carry out all public sector tasks. A number of countries have increased their total budget correspondingly, and on a regional aggregate basis, the deterioration in non-salary operating funding seems to have been checked. In several countries, however, the staff increase has meant an erosion of the purchasing power of the individual salaries of these staff, or a decline in the non-salary operating funds for these staff. Thus, many countries continue to have poorly motivated staff and inadequate resources to satisfy sharply increased demands, and there is still a need for reforms and for the government to disengage from some of its previous tasks. But countries vary greatly in this regard, and therefore it is important to prepare institutional and public expenditure analyses and reorganization plans on an individual country basis, as already recommended elsewhere (de Haan and Nissen, 1985).

CHAPTER VI

THE LIBERALIZATION OF DRUG AND VACCINE IMPORT AND DISTRIBUTION

(i) Drug Imports

44. Until recently, drug imports in most francophone SSA countries were handled by a parastatal monopoly and in most anglophone countries by the private sector. The majority of the parastatal drug companies were poorly managed and developed serious financial problems because of their high overhead and the below-cost pricing of the drugs, frequently forced upon them by central ministries under the mistaken impression that the producer would not pay the full price. As a result of these restrictive policies, only a part of the demand was satisfied through official channels and an active parallel (black) market emerged outside the control of the government.

45. Drug availability seems to have improved where drug imports and distribution have been privatized. A comparison of drug consumption per VLU under different distribution regimes, although confounded by climate and price differences and illegal trade between countries, shows that between 1985 and 1988, for example, the average consumption of drugs in countries with a government monopoly 15/ was US\$0.14 per VLU per year, whereas the consumption in countries that had adopted a freer trade policy 16/ was US\$0.46 per VLU per year.

46. However, external donors continue to support the establishment and rehabilitation of parastatal companies overseeing drug imports and distribution, as in the case of Bank-funded projects in Cameroon, Chad, Guinea, and Mauritania. The rationale is that (a) the private sector in some of these countries is not interested in servicing the remote areas, (b) parastatals are better able to handle the donations in veterinary drugs, and (c) these parastatals need to generate funds for the government livestock service. The terms of agreement in all projects stipulate that the parastatal is to be privatized once the company is reorganized.

47. Some may therefore question whether it is appropriate for donors or the government to continue supporting such parastatals. Experience so far indicates that these organizations are difficult to convert to private operations. Where specific deadlines have been agreed upon (as in the Guinea and Cameroon livestock projects), they have had to be postponed repeatedly. Experience also seems to indicate that drug distribution is not adversely affected when it is taken out of the public sector altogether. In the few

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15/ On the basis of estimates available from Benin, Burkina, Chad, Mauritania, Niger, and Rwanda for any year between 1985 and 1988.

16/ On the basis of estimates available from Cameroon, CAR, Côte d'Ivoire, Ghana, Mali, Senegal, and Kenya for any year between 1985 and 1988. Madagascar, which recently moved from a monopoly to a free import policy was not included because of its transitory nature in this respect.

countries with only private importers (Ghana, Kenya, Zimbabwe), distribution to the remoter areas is as good or better than it is under any parastatal company. Furthermore, the private sector tends to show less interest in participating when a public company is involved. In fact, consumption has been lower in countries that have maintained a parastatal company besides the private importers in comparison with those that relied entirely on the private sector for their imports.

48. Even on the semiarid pastoral rangelands where the density of livestock and humans is low, it is difficult to justify keeping the government in charge of drug distribution. The CAR has found that distributing through local herders' associations under the umbrella of a national federation (Box 1) provides a far superior alternative, and perhaps this ought to be considered as the future model in these countries. Even in those cases where the public sector needs to be involved in drug distribution, it should restrict its activities to supporting the private sector by distributing drugs in remote areas, and should not move into import or wholesale trade. Other arrangements could be envisioned under which the government subcontracted drug distribution in remote areas to private distributors, compensating them with a special subsidy for the extra cost involved. Such arrangements have not yet been tried in Bank-funded projects, but might be preferable to the costly maintenance of parastatals.

49. Foreign Exchange Controls and High Inflation. Although many African countries have been moving toward freer foreign exchange markets, currency restrictions are still preventing drugs from becoming widely available. A common approach to this problem is to have outside donors refinance the revolving funds, but this is only a temporary solution and drug supply comes to a halt the moment the foreign exchange source dries up. When foreign exchange controls are lifted, there is an initial period of high inflation, which makes it difficult to refinance revolving funds where the average turnaround time for drugs is longer than six months. During this period, the value of the local currency can drop by more than half. In the Bank/GTZ-funded Animal Health Project in Somalia (GTZ, 1987), for example, the DM value of the fund was reduced to 57 percent of its original value after the first year of operation and to only 35 percent after 28 months of operation. The problem is especially acute in public sector agencies or projects, where price changes are generally slow and well behind the pace of inflation. In such circumstances, countries need a very dynamic price mechanism with a high margin to achieve a continuous alignment between sale price of drugs and the exchange rate.

(ii) Vaccine Production

50. Another trend that needs to be watched closely is the growing public sector involvement in vaccine production. The number of vaccine production laboratories in SSA has virtually doubled in the past 10 years and all major livestock-producing countries (and also some countries with smaller livestock populations) now have their own vaccine production laboratories. This trend accelerated in the mid-1980s following the 1982 rinderpest outbreak and the resulting scramble for scarce rinderpest vaccine. In the wake of this strong expansion, however, there is a large excess capacity in the region.

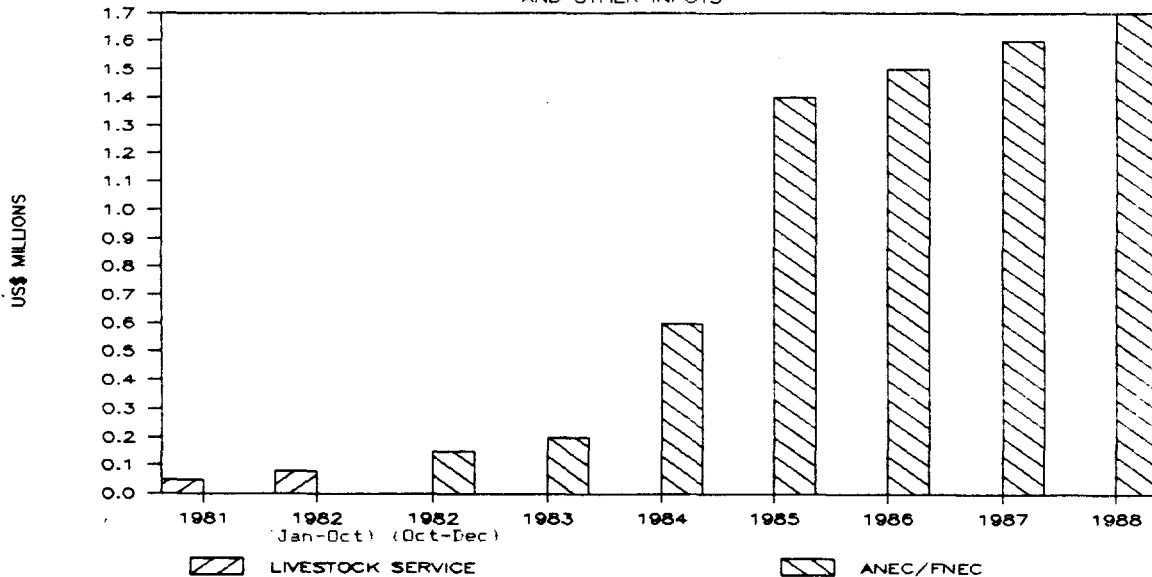


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**Box 1. Drug Supply through Producers' Organizations  
in the Central African Republic**

Under Emperor Bokassa's reign in the mid-1970s, the Central African herders were faced with an almost complete collapse of the government livestock service, and thus formed a private and autonomous National Association of Central African herders (ANEC) to provide drugs and animal health care, crucial in this disease-prone tsetse zone. After an initial period under poor leadership, a new Secretary-General was appointed in 1982. With the support of the Bank/IFAD/ADF-funded First Livestock Project, ANEC developed into an efficient institution, importing and distributing key livestock inputs and representing the herders at the national level. The necessity of access to drugs for the survival of cattle and the ethnic homogeneity of the Nbororo herders, who essentially migrated into the CAR in the last half century and needed a cohesive and united front to survive in their new hostile environment, contributed to the success of their organization. The First Livestock Project's support for ANEC came about after the project failed to establish a drug distribution system through the government's livestock service, as originally envisaged. In effect, the support to ANEC meant a complete reversal in policy as the Credit Agreement of the First Livestock Project explicitly stipulated that ANEC should withdraw from all animal health activities. To broaden its grass roots participation, the national activities are now being tied to local associations and unions of associations under the national umbrella. Its name was changed in 1986 from ANEC to FNEC (National Federation of Central African Livestock Owners). Donor support to FNEC and its grass roots associations continues under the ongoing National Livestock Project. Success in the animal health field has been impressive. Sales of drugs and other inputs have increased dramatically, as shown in Figure 1.

**SALES OF VETERINARY DRUGS  
AND OTHER INPUTS**



This input distribution component is now fully self-sustainable. In 1988, the organization made a profit of US\$230,000 on the sales of these inputs, and while the component has still one expatriate adviser (who could even be paid from the profits), a qualified local sales manager is progressively taking over. It is now starting to branch out into other commercial activities, notably in cattle exports and daily collection and processing.

With the success of input distribution, FNEC's image has greatly improved, not only among the herders, but also at the national level, and FNEC has become a strong voice and political power representing the herders, which is extremely important for this pastoral minority. FNEC's overall sustainability will depend on the quality of its national leadership, the government's respect for its autonomy, and the degree to which it is able to represent all livestock producers in the CAR.

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For example Cheneau (1984) estimated an annual vaccine production capacity for rinderpest of 270 million doses (for a cattle population of 140 million!), for CBPP of 117 million and for FMD of about 50 million, whereas actual production was only respectively 92 million, 16 million and 21 million. From his figures an overall capacity utilization of 37 percent for the vaccines against the contagious diseases and of 29 percent for vaccine production against the less contagious diseases can be calculated. Since then, the capacity has further increased. Furthermore, the vaccines used for the most common diseases (rinderpest, common poultry diseases like New Castle disease) are produced more economically in established large-scale laboratories. Except for private laboratories in Kenya (Wellcome) and Botswana (Rhone Merieux), all laboratories are government-owned and usually under the supervision of the livestock department. Because of the existing overcapacity, practically all laboratories have operating deficits, and what should be self-financing operations depend on subsidies from the government, frequently even above the direct payment of salaries from the treasury. Data from Cameroon, Chad, Mali, and Senegal show a production cost of about US\$0.10 per dose, with a sales price ranging from US\$0.03 to US\$0.05 per dose. The Senegal laboratory is reportedly able to self-finance its vaccine production.

51. This proliferation of national vaccine laboratories should be discouraged, especially now that emergency buffer stocks of rinderpest vaccine are being maintained in five selected SSA laboratories under PARC. <sup>17/</sup> The argument that local operations produce foreign exchange savings has very limited value as vaccine production requires a high share of imported supplies. The strategy should be to develop regional cooperation, and to consolidate the many small national laboratories into larger, more specialized regional laboratories. Furthermore, any plan for the construction of new laboratories, or the expansion of existing ones, needs to be reevaluated in light of the fact that consolidation would help to attract private interest. Most current national laboratories are too small to attract such attention. For this reason, the World Bank has not included the privatization of vaccine production in its policy dialogue with SSA countries; reforms in this field have been limited to reducing the most obvious distortions, for example, by organizing vaccine production in separate self-contained and self-financing units that charge real prices.

(iii) Drug Distribution

52. Until recently, only the staff of veterinary services were allowed to distribute drugs, and this is still the case in some countries. In the francophone countries, this restriction applied to practically all drugs, and in the anglophone countries to the dangerous drugs. Such restrictions were fully justified in the first half of the century, when the available drugs were distributed free to the producers, were expensive in relation to livestock prices, contained ingredients toxic to humans, and improper use produced serious side effects. In the past three decades, however, mass production techniques have reduced drug costs, and research has eliminated many unwanted

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<sup>17/</sup> Dakar (Senegal), Bamako (Mali), Farcha (Chad), Debre Zeit (Ethiopia), and Nairobi (Kenya).

side effects. In many countries, however, the deteriorating salary/non-salary ratio of livestock services has led to the removal of service staff and drug distribution from the field. As a result, distribution points are in many cases 100-200 kilometers apart (Provost, 1987) and this has given rise to a flourishing black market. With the aid of external support, many countries have therefore introduced more liberal distribution, which includes several channels (trained private livestock technicians, traders and producers) (para. 65-69).

53. The degree to which drug distribution and application have been liberalized varies from the unrestricted distribution of all drugs to the restricted sale of prescription drugs, to very restrictive policies for all drugs that need to be injected. Several countries maintain an unjustified discriminatory system, whereby government technicians are allowed to distribute and apply prescription drugs, whereas private technicians at the same level are prohibited from distributing or administering these drugs.

54. Most externally financed projects, including those funded by the World Bank, have supported a more liberal policy and have expanded the list of drugs that can be purchased without prescription 18/. Without such a policy, it is impossible to interest non-professionals in private veterinary care (para. 67). Preliminary experience seems to justify this approach, as black marketeering and adulteration have declined since availability has improved. In the Central African Republic, where drugs have become more available through official channels, the share of drugs purchased by herders on the black market fell from 67 percent in 1982 to 18 percent in 1985 and was down to only 7 percent in 1988. Furthermore, the majority of the herders and lower-level technicians are able to properly handle these drugs (para. 67).

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18/ Those opposed to free distribution argue that when laymen handle drugs, the incorrect (under) dosage is given and chemoresistance may develop. This danger would be especially acute in the case of trypanocides and antibiotics, and therefore their administration needs to be restricted to qualified personnel. The number of trypanocide drugs available on the market is very limited (only 2 basic formulas), and chemoresistance to these trypanocides would have disastrous consequences for livestock development in the sub-humid zones. Similarly, the improper use of antibiotics not only can lead to resistance of the disease agent, but can also have adverse effects on human health. Finally, the liberal distribution of drugs would reduce drug sales as a source of income for self-employed veterinarians, who cannot charge fees for advice per se but can recover the cost of the service via charges for drugs. On the other hand, proponents of a more liberal distribution policy argue that trypanocides are of enormous importance to the survival of whole populations of Zebu animals in the sub-humid zones and their timely availability for prophylactic and curative purposes is critical for the herders. It would be extremely risky for the producer to have to depend on unreliable government service for their distribution and injection.

55. In summary, drug availability at the producers' level has improved in several countries since the private sector--particularly producers' groups--took on some of the responsibility for drug imports and substitution. Thus there seems to be little justification for continued government support of parastatal veterinary drug companies, especially in development projects. Because of the excess capacity in vaccine production in SSA, practically all national vaccine production laboratories are incurring hefty financial losses. The sensible way out of this problem would be to consolidate several national laboratories into larger regional institutes, although this is a politically sensitive issue. At all cost, these countries should try to avoid building new installations.

## CHAPTER VII

### PRIVATIZATION OF CLINICAL INTERVENTIONS

#### (i) Introduction

56. The question of whether countries should be privatizing veterinary services has been at the forefront of all recent discussions on animal health policies. There are a number of compelling reasons for such a move. For one thing, a substantial number of veterinary activities (clinical interventions, voluntary vaccinations, and other preventive schemes) are exclusively private in nature and have a clientele that is willing to pay for the services, as has amply been demonstrated. Privatization is also justified on social grounds in view of the large number of veterinarians and livestock technicians graduating in SSA each year who cannot be absorbed by the public sector. Privatization is a high-profile component of most recently approved Bank-funded operations (Cameroon, Chad, Guinea, and Kenya), as well as those under preparation in Madagascar, Nigeria, Senegal, Tanzania, and Uganda. In most of these projects, privatization is not restricted to the development of professional veterinary practices, but, what is more important, includes the transfer of public sector tasks to other levels (middle-level technicians, veterinary auxiliaries, and producers). The approaches used up to date in these different categories are outlined in the following paragraphs.

#### (ii) Professional Veterinarians

57. Self-employed veterinary professionals, common in other parts of the world, are still rare in SSA. At present, they are operating in 16 out of 30 countries surveyed by Chabeuf (1990)), but mainly in the urban centers (for small animals), in the commercial livestock industries in Zimbabwe and Botswana, and in some cases in areas with high potential, such as the Highlands of Kenya (see box) and Madagascar. Private veterinary care has been--and in many instances still is--stifled by (a) unfair competition from public services, which dispense subsidized treatments and often use para-veterinary staff to compete with would-be professional private veterinarians; (b) a preference for--and sometimes an obligation to employ--new graduates in the civil service; (c) uncertain availability of drugs and equipment; and (d) perceived poor financial perspectives, especially in the pastoral and smallholder areas.

58. These disincentives are now being addressed in the context of general adjustment programs and recently approved livestock projects, and special incentives (para. 61) are being established to improve profitability. Income projections for private veterinarians in Bank staff appraisal reports vary from US\$4,000 to US\$35,000 per year (Annex 4). Such projections seem to be somewhat optimistic as the earnings from a private practice are likely to be below the income earned by a government veterinarian in many parts of Africa. But this should not deter professional veterinarians from considering self-employment, as it will be impossible to fully absorb veterinary graduates

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**Box 2. A Dairy Cooperative Society Organizes Its Own Animal Health Service**

The Limuru Dairy Cooperative Society, located some 40 kilometers north of Nairobi, is one of the most successful cooperatives in Kenya. Founded in 1962 with 72 members, it now boasts 4,495 members delivering about 23,000 liters per day. Its business has grown from collecting and selling milk to supplying farm inputs and credit, operating a dairy farm, and running AI and clinical services. It has also invested in buildings in Nairobi and Limuru, which have been fully paid for. Its annual gross turnover of business is about US\$5.24 million.

The society and its members used to depend on the government for AI and veterinary services. However, the quality of government service was deteriorating for a number of reasons, including the lack of transport and shortage of fuel, drugs, supplies and equipment, all of which were largely due to inadequate operating funds in the government budget. In 1985, the society's leaders decided members would fare better if the society organized and operated its own AI and veterinary service. They approached the Department of Veterinary Services to assist them in this endeavor. They employed a veterinarian and an artificial inseminator on a full time basis. The veterinarian was responsible for establishing and running an AI service, and managing the health program for the society's 342 grade dairy cows on its dairy farm, and had to be on call to treat clinical cases for farmers.

Clinical cases are paid for in accordance with services rendered and the distance traveled by the veterinarian. In 1988 there were 150 cases treated each month with an average charge of about KSh. 135 (US\$6.75) per case including a transport charge of KSh. 2 (US\$0.10) per kilometer. Vaccinations and AI services are given at roadsides of a predefined circuit as well as on call at farms for the first service. Farmers seem to be happy with the reliability and effectiveness of the AI service and demand is increasing despite the high charge (KSh. 40) compared with that of the government service, priced at KSh. 5 per insemination.

The society is planning to expand its animal health services by taking over the operation of dips and opening up its services to nonmembers as well. The foregoing shows that farmers' organizations can indeed decrease their dependence on government for the provision of animal health services and that farmers are prepared to pay the full cost provided that these services are prompt and effective. Governments, donors, and NGOs should encourage them to organize and run their own animal health care services.

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in government posts, 19/ new graduates will have to adapt to the actual situation, and only privatization can provide the impetus needed to improve the quality of veterinary services 20/. The marginal profitability does mean, however, that in the professional practices preference needs to be given to areas with higher potential, such as those in which dairy production is more intensive, those around urban centers with a growing poultry industry, and those with some ranching. In addition, private professional veterinarians could--in some countries, they already do--play a central role in the import and wholesale distribution of drugs. In those areas of production with lower

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19/ By applying the standard requirements for the supervision of preventive and sanitary control tasks (para 37) and present staffing (para 36), one can calculate about 2,000 veterinarians to be available for self-employment in clinical and subcontracting of preventive tasks.

20/ The number of graduates from the veterinary faculties in Kenya, Tanzania, and Zimbabwe each year constitutes 10-20 percent of the total number of veterinarians in these countries.

potential, veterinary care needs to be delegated to middle- and lower-level technicians or to producers themselves, ideally under the supervision of private professional veterinarians. Although basic animal health care has been successfully introduced at the middle and lower levels, (para. 65-69), the basic animal health care system in SSA has not yet been adequately linked up with private professional veterinarians. This is a critical issue that needs more attention in future project design.

59. Although some issues still need to be resolved (para. 62), interest in privatization is rising in the changing policy climate in SSA, and in the face of frozen recruitment and retrenchments of public servants in many countries. In a survey carried out during the preparation of the Uganda Livestock Project, 90 percent of the veterinarians responding indicated they were interested in developing private practices. A similar positive reaction was obtained in Tanzania. Informal contacts with groups of veterinarians in Cameroon, Mali, Niger, Nigeria, and Senegal have yielded the same results.

60. Another encouraging development is the creation and rehabilitation of national associations of veterinarians (NAV). Such professional associations are already strong in Kenya and Zimbabwe and are now being created or rehabilitated in Cameroon, Madagascar, Mali, Nigeria, Tanzania, and Uganda. NAV are non-government organizations that represent the interests of the veterinary profession and can be highly effective interlocutors in these discussions. Although NAV have only been involved in the preparation of privatization for Bank-financed projects in Kenya, Tanzania, and Uganda, they are expected to be included in a Madagascar project as well (with a view to strengthening the Madagascar Veterinary Association). NAVs were very effectively used in Uganda and Tanzania to assess the extent to which government veterinarians were interested in privatization. It should be noted, however, that if the responsibilities of the Livestock Service and the NAV are not clearly defined, project preparation can be hindered, rather than helped, as occurred in the preparation of the Kenyan Animal Health Project. Senior government officials assumed that the primary initiative had to come from the Kenyan Veterinary Association, but that since this organization was a private institution, it could not benefit from external funding. NAVs are not yet strong enough to give business management training and administrative support to private veterinarians and would require technical assistance until their membership fees can support such activities.

61. Operations funded by the World Bank and other donors include numerous special incentives to encourage countries to establish private veterinary practices, as outlined below. These incentives also apply to middle-level technicians starting a private animal health care enterprise.

- (a) financial support in the form of credits (Chad, Cameroon, Guinea), sometimes supplemented by grants consisting of a six-month to one-year initial stock of drugs (CAR, Chad, Cameroon) for those leaving government service;
- (b) assurances that the government will continue to pay a partial salary for a limited period in those areas where livestock density is too low to provide an adequate income;

- (c) assurances that the government would subcontract services (vaccination, meat inspection, dip supervision, artificial insemination) at remunerative rates to self-employed veterinarians (Chad, Cameroon, not including meat inspection) (this seems to be one of the more attractive incentives, as it would provide the individual a guaranteed income, and at the same time produce net savings for the government);
- (d) transfer of facilities and transport to the private operator, who would then pay only for their maintenance and operation;
- (e) assurances that the government will stop all curative and noncompulsory preventive interventions in a certain area, as soon as private individuals have established themselves in that area (Chad and Guinea) or a pilot area is identified in which public livestock services would stop handling all non-public functions at a certain date so as to avoid all unfair competition from the public sector (Cameroon);
- (f) the provision of a one- to two-year leave of absence for government employees to test the feasibility of private activities without any loss of income security should the test fail (Chad and Guinea); and
- (g) the free or subsidized provision of office and laboratory facilities combined with part-time employment, which combines (c) and (d).

Some of these incentives are now also being introduced in national legislation, in efforts not supported by external funding (Mali, Senegal). These measures were introduced in 1987 in Guinea and CAR, and later in Cameroon and Chad. It is too early to tell whether they provide a powerful enough incentive to encourage the development of private veterinary practices.

62. Experience thus far suggests that the following two issues merit specific attention in project design:

- (a) Balance between the Public and Private Sector. This balance is of concern not only at the macro level, but also at the micro level. All Bank-funded projects seeking to develop private veterinary care also seek to improve the performance of public sector tasks, in part because the tasks are important in themselves and need to be strengthened, but also because it is vital to interest the government in the overall project. However, the investment in equipment, the financing of allowances, and the funding of clinical services can give government veterinarians strong advantages over any newly established private ones and may discourage government veterinarians from leaving the public sector. This is thought to be the case in the Kenyan, Guinean, and Chadian projects.
- (b) Full Cost Recovery by Government Services. There is an innate resistance in the public sector to charge real costs for the services it provides. Still, it is essential to do so if the private practitioner is to be assured of an adequate income. The problem is well illustrated in the Kenya Animal Health Project, where, at negotiations, government fees were established below cost price.



and were finally introduced after a considerable delay, which killed all interest in self-employment. The Kenyan government argued that this delay was necessary because services first had to be improved to a level where producers would be willing to pay for them. However, experience elsewhere (and in Kenya; see Box 2.) shows that farmers are quite willing to pay for veterinary service. Thus, valuable opportunities to develop sustainable services were missed.

63. A comprehensive approach, which will eliminate all unfair competition from the public service, therefore seems to be a prerequisite for the success of professional private veterinary practices. Such an environment will be provided under the recently approved Cameroon Livestock Sector Development Project, in which the government will stop providing all treatments and voluntary vaccinations in certain zones, and will be charging the full costs in the remaining parts of the country.

64. In summary, in the past the countries of SSA did not provide a framework of appropriate incentives and this discouraged private veterinary practice, managed by professional veterinarians, from developing. Although the environment is improving in many countries and special incentives are being introduced through externally financed projects, opportunities will remain limited to the more productive systems and to those in peri-urban areas. Great care should be taken in project design to eliminate unfair competition from the public sector. Such a threat may arise if the public sector components of projects designed to develop private veterinary care are unduly strengthened. Nongovernment national associations of veterinarians could play an important role in promoting and safeguarding private interests, but governments need to accept them as equal partners in the discussions and allow their activities to be funded by external donors and NGOs.

(iii) Other Groups

65. Considerable experience with privatization has been gained among veterinary groups with lower-level skills, notably (a) private middle-level technicians with one to four years of technical training after primary training for the sedentary production systems; and (b) producer representatives (auxiliaries) with varying educational backgrounds specially trained for the pastoral production systems. These non-professionals are better equipped to serve the extensive production systems in particular, because (a) their income aspirations are below the level a professional expects and can be met in most production systems; (b) communication between the nonprofessional animal health worker and the producer--frequently from the same ethnic group--is generally better than between the professional veterinarian and the producer, who are frequently from different ethnic backgrounds; and (c) a large proportion (80-90 percent) of the veterinary interventions required in the extensive production systems are simple and can be done by less-qualified persons, especially if they are properly supervised.

66. Although private nonprofessional animal health care is a fairly recent phenomenon in SSA, it is now being tested in at least 10 countries in about three million Livestock Units and is expected to be introduced in much broader scope in another 10 countries. Nonprofessional systems seem to be providing a viable alternative to the poorly functioning public systems. Middle-level technicians have been successfully employed in nonprofessional

animal health care in the FAC-financed GDS (Sanitary Defense Group) project in Southern Chad, which was established in the late 1970s and now operates with about 50 technicians, who mainly look after work-oxen for cotton farmers. The sustainability of that operation was demonstrated during Chad's period of civil unrest in the early 1980s, when most groups continued functioning. Middle-level technicians have also been used in the FAC-financed village poultry health system in Burkina Faso, which now operates in about 50 villages and has developed a fully sustainable system of poultry vaccinations for about 2 million village poultry (see Box 3.). Examples of satisfactorily operating veterinary auxiliaries include (a) the GTZ/World Bank-sponsored nomadic Animal Health Assistants now working in 52 teams in three districts of Somalia; (b) the World Bank/IFAD/ADF-sponsored animal health assistants working in 60 pastoral groups in the CAR; (c) the network of 200 auxiliaries sponsored by the World Bank, FAC, and Economic Cooperation Fund of (CCCE) in Niger; and (d) OXFAM-sponsored animal health assistants in Eastern Chad. A list of ongoing and expected projects with nonprofessional animal health care is included in Annex 2.

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#### Box 3. Village Poultry Production in Burkina

The FAC-financed Burkina Village Poultry Project has successfully established a self-financing network of village poultry vaccinators in the Central Region of Burkina. A total of about 330 vaccinators, selected by the local communities and trained for three days in the most common poultry diseases and their prevention, vaccinate about 2 million a year and treat (internal and external parasites) about 1.5 million poultry from about 100,000 households. The vaccination of 2 million poultry out of a total population of 7 million has effectively stopped the previously recurring epidemics, which each year killed 80 percent of the village poultry population, and has increased poultry production by about 1,000 tons per year. With the commercial sector and imports reportedly having remained stable or decreased, the 25 percent decline in consumer price between 1980 and 1988 can probably be attributed to the effects of the project as well. A large problem that still needs to be addressed is the volume of vaccinations, which, in spite of an already significant adjustment in the number of vaccinators (from 800 envisaged at project conception to 330 now) is still too low to be sufficiently attractive. Planners now envisage a continuing reduction in the number of vaccinators, plus expansion into the vaccination of village sheep and goats, designed to bring the annual income of the vaccinator from US\$100 to US\$600.

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67. Reliable data on the quality of the service provided by nonprofessional agents are scarce. Surveys in the Central African Republic indicated that about 90 percent of the herders-auxiliaries there have used a drug against internal parasites correctly, 85 percent of the producers diagnosed trypanosomiasis correctly, and 75 percent of the herders calculated the dosage within 10 percent of the recommended amounts. Vaccinations against Anthrax and Blackleg were carried out properly as well. These figures compare favorably with surveys on the level of expertise of government field staff in some countries, which frequently show lower scores for proper disease diagnosis and correct dosage. Experience in Senegal, Zaire, and in the GTZ-financed Somalia project corroborate the auxiliaries' expertise in diagnosing disease and judging dosage. However, more research and monitoring will obviously be required to adequately assess levels of expertise.

68. The positive findings reported above (para. 67) come from auxiliaries recruited mainly from pastoral populations. Consequently, they already possess broad experience in livestock raising and are more likely to diagnose diseases

correctly and apply appropriate drugs in the required doses. It is not clear whether similar positive results would be obtained with auxiliaries recruited from populations relatively new to livestock raising. Experience with veterinary services for the work-oxen of crop farmers provided through the cotton companies (Cameroon, Chad and Mali) suggests that the farming population involved had a much lower level of skill in diagnosing and treating animal disease and that it was difficult to recruit auxiliaries sufficiently familiar with livestock raising. A two-pronged approach, that is, to follow a rather liberal drug distribution policy for the traditional pastoral livestock raisers, using their representatives as the main channel, and a more cautious distribution policy using higher-qualified technicians for the less skilled producers, seems therefore indicated.

69. A number of important lessons can be drawn from past experience concerning the organization of nonprofessional animal health care:

- (a) Organizational Context. Nonprofessional animal health care cannot be fully sustained unless the auxiliary is integrated into a group or association at the grass roots level and there is a reliable supply system for equipment and drugs at the national level. A condition of the most recently approved nonprofessional animal health care projects <sup>21/</sup> was that producers' groups be established not only for animal health care but as a tool for the transfer of other tasks (water point and range management) from the public to the private sector. Thus, animal health care becomes the catalyst for group formation, which leads to more comprehensive communal resource management. The input supply side seems to be the weakest link. Input supply for the auxiliaries is generally handled by the project or is left to a parastatal company, thus seriously endangering post-project sustainability. The only exceptions are the Ituri, Zaire, and CAR regional and national producers' associations, which are developing into fully self-financing, sustainable institutions.
- (b) Selection and Training of Auxiliaries. It is important for the veterinary auxiliary to come from the community he or she is to serve, particularly in the pastoral production systems, and to maintain close ties with his community during the training period. For example, the first group of auxiliaries in the Bank/IFAD/ADF-funded CAR First Livestock Project were selected on the basis of literacy rather than origin and representation, and when they returned after their three months of training, they had no group to fall back on and failed completely. The course format was therefore changed into a short (3-6 days), frequently repeated (every six months) program, involving not only the auxiliary, but also the traditional hierarchy. A similar situation occurred in the Eastern Senegal Project and on a national scale in Ethiopia, where outside so-called veterinary scouts failed, and specially selected auxiliaries are succeeding (see Box 4.).

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<sup>21/</sup> Including the Bank funded projects in Cameroon, CAR, Chad, Guinea, Mali (ODEM), Mauritania, Niger, Eastern Senegal, and Zaire (Ituri).

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#### Box 4. Service Cooperatives in Ethiopia Employ Animal Health Auxiliaries

Since 1975, farmers in Ethiopia have been organized in peasant associations (PAs). Groups of 5-10 PAs are forming service cooperatives for the purpose of procuring and distributing inputs and selling their crops. At present there are some 20,000 PAs and about 4,170 service cooperatives. In view of the organizational problem and shortage of manpower and resources to provide animal health services for farmers, the current strategy of the government is to encourage the service cooperatives to partly assume these tasks. In the IDA-financed Fourth Livestock Development Project, participating service cooperatives build cattle crushes and drug stores at their own expense and recruit auxiliaries from their own communities for government training. The recruits are given practical training in general livestock husbandry and simple animal health techniques, including deworming, tick control, castration, and the treatment of external infections. When they return from training, they become auxiliaries employed by the service cooperatives. Their tasks include managing the drug store of the service cooperative, assisting farmers in the application of drugs and simple treatments, assisting government veterinary staff in teaching farmers and liaising between them and the farmers in disseminating information such as dates and places of farmer training and vaccination campaigns and notifying veterinary staff on disease outbreaks. Animal health assistants visit the service cooperative every 15 days to give extension advice to farmers and to treat their livestock.

The main objective of the project is to service 1,500 service cooperatives in five years. A promising start has been made. About 112 service cooperatives have started participating in the first year of the project. The veterinary authorities are convinced that this system is working and could be the cornerstone of their animal health extension service in the future. In the 1970s, Ethiopia had tried to place similar auxiliaries, called veterinary scouts, among pastoral groups to render similar service, but without much success. The veterinary scouts were government employees, who chose to live in the towns where the government offices were located instead of with the herders. What makes the current auxiliaries different is that they are the employees of the farmers and are directly accountable to the officers of the service cooperatives, who can dismiss them should they become unproductive.

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- (c) Remuneration. Although it is important to integrate the auxiliary into an association, there is a danger that the auxiliary will become a poorly remunerated social worker. When that happens, the interest of the auxiliaries dies quickly. Consequently, a combination of a small retainer paid by the association and a margin on the sale of drugs seems to be essential to maintain the auxiliaries' interest.
- (d) Government Involvement. Nonprofessional animal health care should develop as a private activity, and the government's role should be restricted to technical support/training and ex-post control and should exclude day-to-day management. However, if there has been a tradition of public sector involvement and control, some degree of involvement may be expected to continue when the auxiliary movement/associations become national in scope. Thus, in the CAR there is a tendency for the government to get involved in the management of the successful livestock producers' association, FNEC.
- (e) Bank Suitability. Establishing a nonprofessional animal health care system is a location-specific, protracted, and incremental task, without a high funding requirement. The World Bank and SSA governments are not as well equipped to handle such a task as NGOs, which therefore should be encouraged to assist in the development of pastoral associations. The approach used in Cameroon--where the government subcontracted an NGO (with Bank/IFAD funds) to establish

pastoral associations--is therefore particularly interesting and should be closely monitored.

70. Groups and Special Animal Health Tasks. Group responsibility for animal health tasks ranges from the management of all health tasks and artificial insemination, as in Kenya (see Box 2.), to the simpler tasks of managing dips and the veterinary stores. Experience with group management of dips has been mixed. The turnover in group-managed dips in the Ituri, Zaire, and CAR First Livestock Project was much higher than in government-managed ones, although in the CAR, access to the (subsidized) dips became an inequitable political tool in the hands of the presidents of the groups. In Kenya, the community performed rather poorly in maintaining the required acaricide level of the dipping fluid, with the result that tick-borne disease accounted for 90 percent of all reported diseases, whereas in areas with government-operated dips, tick-borne diseases constituted only 20 percent of the reported diseases (Leonard 1984). The present policy in the Kenya Animal Health Project is to transfer the dips to the community but to improve government monitoring of the dip operation.

71. Success in managing veterinary stores also depends on the control and quality of management. The overall financial management of these seems better in the more hierarchically structured and more tightly controlled pastoral societies than in crop farmers' groups. Group veterinary pharmacies appear to be operating satisfactorily in the Eastern Senegal Project, Mali ODEM Project, Mauritania Livestock Project, and Zaire Ituri project. In all these projects, the association's revolving funds are now also used for additional functions besides the veterinary pharmacy. Post-project sustainability is the main concern. In the CAR First Livestock Project, for example, the average balance for the 20 revolving funds for the pharmacies tripled between 1983 and 1985, and pharmacies had an average turnaround time of three months; in 1986, in the between-project period, 40 percent of the revolving funds suffered from leakage, but there was marked improvement from 1987 onward, under the new project. This project is now working on establishing an improved internal control system, and on strengthening the role of the auxiliary in directly managing the revolving fund.

72. In summary, the initial experiences with private nonprofessional animal health care have been positive, especially when integrated into producers' groups. In several countries, this has proved to be a promising alternative to the public sector veterinary health care system, although little information is yet available on after-project sustainability. Preliminary results suggest that suitably trained auxiliaries, especially from a pastoral background, correctly diagnose and apply the principal drugs used against the most common diseases. However, some important steps still need to be taken. The countries of SSA should now focus on establishing a reliable input supply system, involving private veterinarians in the management of private nonprofessional health care, clarifying the relationship between the official livestock service and the nonprofessional animal health care system, and ensuring quality control and financial sustainability.

## CHAPTER VIII

### IMPACT AND LESSONS LEARNED

73. The measures recently introduced in animal health care in SSA are still too new to provide a full and objective assessment of their impact. However, a few general comments can be made on the basis of the experience to date. At this stage, it is essential to continuously monitor the unfolding impact of these reform measures so that the conclusions of this report can be empirically tested.

- (a) The imports and distribution of veterinary pharmaceuticals can be--and increasingly are being--handled entirely by the private sector, and efforts in this field need to be pursued. The private sector also needs to be involved in vaccine production, which is still publicly managed, although privatization here needs to be preceded by consolidation of SSA's many small laboratories in larger regional units.
- (b) Full cost recovery for government services is an essential prerequisite for any private involvement in veterinary services. Cost recovery for these services has been widely introduced in SSA over the past decade and has yielded satisfactory results for clinical and prophylactic intervention, but, as expected, has been less successful in the more marginal activities like cattle dipping and artificial insemination.
- (c) During the 1970s and early 1980s, staff recruitment was disproportionate to the available operating means and thus had an adverse effect on the efficiency of government services, but this trend has now leveled off, although imbalances persist in many countries.
- (d) Private nonprofessional veterinary services have been successfully developed with producers' groups. Their representatives (auxiliaries), if properly trained, have been shown to be capable of carrying out most treatments correctly, and group formation around animal health has been an important precursor to other cooperative activities.
- (e) The countries of SSA are just beginning to use self-employed veterinarians. Favorable conditions have been created in several projects for veterinarians to start privately. More experience needs to be gained before definite conclusions can be drawn about this venture.
- (f) More and more African decision makers are becoming aware of the fact that they need to find alternative ways to organize and finance veterinary services.

74. A rough assessment indicates that at present:

- (a) about 50 percent of veterinary pharmaceuticals in SSA are imported through the private sector;
- (b) about 60 percent of these drugs are administered through producers (predominantly) and veterinary auxiliaries; and
- (c) about 2 percent of SSA's livestock population is being regularly treated by trained veterinary auxiliaries who are privately employed, and over the next five years this figure is expected to expand to about 40 percent.

75. It is still too soon to estimate the impact of these initiatives on SSA's meat and milk production. An idea of their potential can be gained by looking at the FAC-financed Burkina Village Poultry Project (Box 3.) and the two new-style animal health projects (Zaire Ituri Project and Central African Republic First Livestock Project) that have been completed and have had an ex-post evaluation. Under the Ituri and CAR projects, meat yield appears to have increased by 1500-2000 tons by project completion (and is expected to reach 10,000-15,000 tons at full development) and to have had an ex-post Economic Rate of Return in excess of 15 percent and 36 percent in the respective projects. Progress on the ongoing new-style projects also seems satisfactory; the average overall performance rating for the Bank's livestock-only projects under implementation is at par with the average of agricultural projects, whereas the ratings of the old-style projects of the 1970s were consistently lower.

76. Thus, the overall initial results are encouraging, although any definite claim of success would be premature. It seems that if this course is continued--supplemented with other technologies such as simple feed improvements, small stock development, smallholder cattle fattening and dairy operations, which have all shown some degree of promise in ongoing livestock projects--livestock should be able to play a catalytic role in SSA's agricultural development and alleviate the huge meat and milk deficit projected for SSA in the twenty-first century.

ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA

INITIAL EXPERIENCES WITH ALTERNATIVE APPROACHES

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ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA

INITIAL EXPERIENCES WITH NEW APPROACHES

AN ESTIMATE OF LOSSES CAUSED BY DISEASES

1. The losses caused by animal health problems are classified in direct losses because of mortality and indirect losses because of decreased growth, fertility and work output (morbidity losses). Estimates of direct losses are in the order of US\$ 2 billion per year. The importance of indirect losses is more difficult to estimate, but are generally thought to be in the same order. The break down of the direct losses per class of animals is as follows:

| <u>Category</u>          | <u>Total Population<br/>(million head)</u> | <u>Av. Mortality<br/>(%)</u> | <u>Av. Price<br/>(US\$)</u> | <u>Total Loss<br/>(million US\$)</u> |
|--------------------------|--|------------------------------|-----------------------------|--------------------------------------|
| <u>Cattle</u>            |  |                              |                             |                                      |
| Calves                   | 40   | 20                           | 40                          | 320                                  |
| Adults                   | 120  | 5                            | 200                         | 1200                                 |
| <u>Sheep &amp; Goats</u> |  |                              |                             |                                      |
| Lambs/kids               | 80   | 25                           | 10                          | 200                                  |
| Adults                   | 140  | 10                           | 20                          | 280                                  |
| <u>Pigs</u>              |  |                              |                             |                                      |
| All                      | 10   | 10                           | 30                          | 30                                   |
| <u>Poultry</u>           |  |                              |                             |                                      |
| Village                  | 400  | 20                           | 2                           | 160                                  |
| Intensive                | 100  | 5                            | 3                           | 15                                   |
| <u>Total</u>             |  |                              |                             | 2205                                 |

The total of US\$ 2 billion concurs with figures provided by FAO (1985).

2. There is a lack of quantitative information on the relative importance of the different diseases. Disease surveys carried out in specific regions, frequently in the framework of a project, show an overwhelming importance of internal parasites especially as a cause of young stock mortality. Furthermore they show, slightly less but still very important, losses caused by diseases transmitted by external parasites (ticks, e.g. East Coast Fever, Anaplasmosis, etc. especially in East and Southern Africa). The losses resulting from the major contagious diseases Rinderpest and Contagious Bovine Pleuro-Pneumonia (CPBB), are relatively

insignificant, because of the reasonable level of immunity resulting from national annual vaccination campaigns, resuscitated after the major outbreaks in 1982-1983. The major cost concerning these diseases consist in maintaining immunity at the level required to prevent a repetition of such general outbreaks. The vaccination against Rinderpest is therefore the main--and sometimes only--task of SSA's livestock services. Under most of Africa's extensive production systems, Foot and Mouth Disease (FMD) does not result in major economic losses and therefore does not warrant a generalized vaccination coverage. Blanket vaccination might be justified in intensive dairy production and for those countries (presently Botswana, Zimbabwe and provisionally Madagascar), which have a preferential access for meat and meat-products to the European Economic Community, but only from meat produced in FMD free zones. Trypanosomiasis or animal sleeping sickness, transmitted by the tse-tse fly, precludes raising of trypano-sensitive breeds (90 percent of SSA's cattle population and 70 percent of SSA's small ruminant population) in tse-tse infested areas, unless maintained permanently on a drug regime. Peste de Petit Ruminant (PPR) is a major killer of sheep and goats in the humid zones of West and Central Africa. The use of tissue culture Rinderpest (TCR) vaccine, which has been found effective against PPR, is increasingly being used. New Castle disease, coccidiosis and fowl pox are the major killer diseases of poultry. Vaccines are available for all diseases. A number of countries (Burkina Faso, Senegal, Côte d'Ivoire, etc.) have started vaccinations of village poultry with good effect.

ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA

INITIAL EXPERIENCES WITH NEW APPROACHES

LIST OF IMPORTANT PROJECTS AIMED AT PRIVATIZATION OF VETERINARY CARE

| <u>Country</u>       | <u>Donor(s)</u>  | <u>Main Focus</u>   |
|----------------------|------------------|---|
| Burkina              | FAC              | Village poultry/small ruminant vaccinations   |
| Central African Rep. | IDA/IFAD/EEC/FAC | Drug distribution and herders training through national herders federation                                  |
| Cameroon             | IBRD/IFAD        | Private import and distribution systems, private practices for professional and mid-level technicians       |
| Chad                 | GTZ              | Veterinary auxiliaries  |
| Chad                 | EEC/IDA/FAC/ADB  | Privatization with professional veterinarians, mid-level technicians and herders associations (auxiliaries) |
| Chad                 | FAC              | Privatization with auxiliaries in cotton region   |
| Cote d'Ivoire        | CCCE /GTZ/FAC    | Village Pharmacies and private auxiliaries  |
| Ethiopia             | IDA              | Service cooperatives and auxiliaries  |
| Guinea (Conakry)     | IDA/CCCE/FAC     | Private imports, and privatization at various levels  |
| Kenya                | IDA/IFAD/OPEC    | Private professional practices, privatization of dips; cost recovery  |

ANNEX 2  
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|                                   |              |  |
|-----------------------------------|--------------|--|
| Mali                              | IDA          | Herder associations,<br>auxiliaries  |
| Nigeria                           | IBRD/EEC     | Studies  |
| Senegal (Eastern<br>Senegal)      | IDA          | Herder and village<br>associations   |
| Somalia (Animal Health)           | IDA/GTZ      | Veterinary auxiliaries   |
| Somalia (Central Range-<br>lands) | IDA          | Cost recovery measures   |
| Sudan (Western savannah)          | IDA          | Privatization with prof.<br>practices auxiliaries                            |
| Uganda                            |              | De facto privatization,<br>External support in advanced<br>stage of planning |
| Zaire (Ituri)                     | IDA/FAC/CIDA | Regional herder associations<br>and auxiliaries                              |

| Year                            | Country    | Project Name                    | Loan/Credit<br>Amounts<br>US \$ million | Total<br>Project<br>Costs<br>US \$ million | Veterinary<br>Component<br>% |
|---------------------------------|------------|---------------------------------|---|--|------------------------------|
| <b>WEST AFRICA</b>              |            |                                 |   |  |                              |
| 1988                            | CAMEROON   | Livestock Sector Dev. Project   | 34.6                                    | 55.2                                       | 19                           |
| 1986                            | C.A.R      | National Livestock Project      | 11.9                                    | 37.3                                       | 38                           |
| 1988                            | CHAD       | National Livestock Project      | 18.6                                    | 37.2                                       | 70                           |
| 1986                            | GUINEA     | Livestock Sector Rehab. Project | 9.8                                     | 22.2                                       | 54                           |
| 1986                            | MAURITANIA | Second Livestock Project        | 7.6                                     | 18.1                                       | 42                           |
| 1986                            | NIGERIA    | Second Livestock Project        | 81                                      | 128  | 20                           |
|                                 |            | Total                           | 163.5                                   | 298  | Avg 32                       |
| <b>EAST AND SOUTHERN AFRICA</b> |            |                                 |   |  |                              |
| 1985                            | BOTSWANA   | Land Management Project         | 10.7                                    | 17.8                                       | 5                            |
| 1987                            | ETHIOPIA   | Fourth Livestock Project        | 39                                      | 57.2                                       | 51                           |
| 1986                            | KENYA      | Animal Health Project           | 15                                      | 47   | 100                          |
| 1988                            | SOMALIA    | Central Rangelands II           | 19                                      | 33.3                                       | 7                            |
| 1986                            | SOMALIA    | Animal Health Project           | 4.3                                     | 11.6                                       | 100                          |
|                                 |            | Total                           | 88                                      | 166.9                                      | Avg 55                       |

ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA

INITIAL EXPERIENCES WITH NEW APPROACHES

A SUMMARY OF KEY ANIMAL HEALTH CARE POLICIES IN SSA

| COUNTRY                   | COST RECOVERY                |                          |           |                        |      | REVENUE TO LIV. SERV. | DRUGS                 |                | STAFF CONSOLIDATION |
|---------------------------|------------------------------|--------------------------|-----------|------------------------|------|-----------------------|-----------------------|----------------|---------------------|
|                           | VACCINATIONS<br>NON-COMPULS. | VACCINATIONS<br>COMPULS. | DRUGS     | CLINICAL INTERVENTIONS | DIPS |                       | IMPORT & DISTRIBUTION | ADMINISTRATION |                     |
| WEST AFRICA               |                              |                          |           |                        |      |                       |                       |                |                     |
| BENIN                     | FULL                         | FULL                     | FULL      | FREE                   | N.A. | YES                   | GOV.                  | RESTRICTIVE    | NO                  |
| BURKINA                   | FULL                         | FULL                     | FULL      | FULL                   | N.A. | ?                     | ?                     | FREE           | NO                  |
| CAMEROON                  | FULL                         | FULL                     | FULL      | FULL                   | N.A. | PART                  | GOV./PRIV.            | RESTRICTIVE    | YES                 |
| C.A.R.                    | FULL                         | FULL                     | FULL      | FREE                   | PART | YES                   | PRIV.                 | FREE           | YES                 |
| CHAD                      | PART                         | FREE                     | FULL      | PART                   | N.A. | YES                   | GOV.                  | RESTR./FREE    | YES                 |
| COTE D'IVOIRE             | FREE                         | FREE                     | PART/FULL | PART/FREE              | FREE | YES                   | PRIV.                 | RESTRICTIVE    | NO                  |
| GAMBIA                    | FULL                         | FREE                     | FULL      | FULL                   | N.A. | NO                    | PRIV.                 | RESTRICTIVE    | YES                 |
| GHANA                     | FULL                         | FREE                     | FULL      | FULL                   | ?    | NO                    | PRIV.                 | RESTRICTIVE    | YES                 |
| GUINEA                    | PART                         | PART                     | FULL      | PART                   | N.A. | YES                   | GOV.                  | FREE           | YES                 |
| MALI                      | FULL                         | FULL                     | FULL      | FREE                   | N.A. | NO                    | GOV./PRIV.            | RESTRICTIVE    | YES                 |
| MAURITANIA                | FULL                         | FULL                     | PART      | PART/FULL              | N.A. | YES                   | GOV.                  | FREE           | NO                  |
| NIGER                     | PART                         | FREE                     | PART/FULL | FREE                   | N.A. | NO                    | GOV.                  | RESTRICTIVE    | NO                  |
| NIGERIA                   | FULL/PART/FREE               | FREE                     | PART/FULL | FREE                   | N.A. | NO                    | PRIV.                 | RESTRICTIVE    | PART                |
| SENEGAL                   | FULL                         | FREE                     | FULL      | PART                   | N.A. | YES                   | GOV./PRIV.            | RESTRICTIVE    | YES                 |
| EASTERN & SOUTHERN AFRICA |                              |                          |           |                        |      |                       |                       |                |                     |
| BOTSWANA                  | FULL                         | FREE                     | FULL      | FULL                   | ?    | NO                    | PRIV.                 | RESTRICTIVE    | NO                  |
| BURUNDI                   | FREE                         | FREE                     | PART/FULL | PART                   | FREE | NO                    | GOV.                  | RESTRICTIVE    | NO                  |
| ETHIOPIA                  | FULL                         | FREE                     | FULL      | FULL                   | ?    | YES                   | GOV./PRIV.            | FREE           | NO                  |
| KENYA                     | FULL/PART                    | FREE                     | PART      | PART                   | PART | NO                    | PRIV.                 | RESTR./FREE    | YES                 |
| MADAGASCAR                | FULL                         | FREE                     | PART/FULL | PART/FREE              | FREE | NO                    | GOV./PRIV.            | RESTRICTIVE    | YES                 |
| RWANDA                    | FREE                         | FREE                     | PART      | FREE                   | FREE | NO                    | GOV.                  | RESTRICTIVE    | NO                  |
| SOMALIA                   | FULL                         | FREE                     | FULL      | FULL                   | N.A. | NO                    | GOV./PRIV.            | FREE           | YES                 |
| SUDAN                     | FULL                         | FREE                     | FULL      | PART                   | FREE | NO                    | PRIV.                 | RESTRICTIVE    | ?                   |
| TANZANIA                  | FULL                         | FREE                     | FULL      | PART                   | PART | NO                    | GOV./PRIV.            | RESTRICTIVE    | ?                   |
| ZAMBIA                    | FREE                         | FREE                     | FULL      | PART                   | PART | ?                     | ?                     | ?              | ?                   |
| ZIMBABWE                  | FREE/FULL                    | FREE                     | FULL      | PART                   | FREE | NO                    | PRIV.                 | RESTRICTIVE    | NO                  |

ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA  
INITIAL EXPERIENCES WITH NEW APPROACHES

STATISTICAL DATA ON VETERINARY HEALTH CARE  
IN A NUMBER OF SSA COUNTRIES (1985-1988)

CASHFLOW STATEMENT

| <u>ITEM</u>              | <u>CAMEROON</u> | <u>CHAD</u> | <u>GUINEA</u> |
|--------------------------|-----------------|-------------|---------------|
| <u>CASH OUTFLOW</u>      |                 |             |               |
| Vehicle                  | 13000           | 2000        | 900           |
| Housing                  | 6500            | 6000        | 2700          |
| Veterinary Equipment     | 2000            | 1000        | 900           |
| Drugs                    | 26000           | 7000        |               |
| Operating Costs          | 3000            | 1000        | 600           |
| Debt Services            |                 |             | 900           |
| Total                    | 50500           | 16000       | 6000          |
| <u>CASH INFLOW</u>       |                 |             |               |
| Drugs                    | 34000           | 11000       | 900           |
| Subcontracts             | 7000            | 500         | 900           |
| Clinic                   | 11000           | 1000        | 600           |
| Loan                     | 25000           | 12000       | 8000          |
| Total                    | 77000           | 24500       | 10400         |
| Av. Inflow First Year    | 26500           | 8500        | 4400          |
| Av. Inflow Full Develop. | 35000           | 10700       | 4000          |



**ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA**

**INITIAL EXPERIENCES WITH NEW APPROACHES**

**STATISTICAL DATA ON VETERINARY HEALTH CARE IN A NUMBER OF SSA COUNTRIES (1985-88)**

| COUNTRY               | LIVESTOCK POPULATION (1985) |             |            |              |              |             |            |               | LIVESTOCK UNITS TLU (000) | LIVESTOCK UNITS VLU (000) | HUMAN POPULATION | (TLU) PER POPULATION |
|-----------------------|-----------------------------|-------------|------------|--------------|--------------|-------------|------------|---------------|---------------------------|---------------------------|------------------|----------------------|
|                       | Cattle (000)                | Sheep (000) | Goat (000) | Camels (000) | Horses (000) | Asses (000) | Pigs (000) | Poultry (000) |                           |                           |                  |                      |
| 1 BENIN (a)           | 1000                        | 1800        | 1400       | 0            | 5            | 1           | 800        | 10000         | 1194                      | 1573                      | 4042000          | 0.30                 |
| 2 BURKINA (b)         | 2800                        | 2800        | 3500       | 8            | 70           | 200         | 200        | 21800         | 3008                      | 3871                      | 7984705          | 0.38                 |
| 8 CAMEROON (b)        | 4100                        | 2500        | 2000       | 0            | 25           | 37          | 800        | 13000         | 3549                      | 4981                      | 10446000         | 0.35                 |
| 4 C.A.R (b)           | 1800                        | 88          | 970        | 0            | 0            | 0           | 150        | 2000          | 1415                      | 1980                      | 2740000          | 0.52                 |
| 5 CHAD (b)            | 3400                        | 2250        | 2000       | 421          | 150          | 255         | 8          | 3000          | 3505                      | 4452                      | 5081000          | 0.69                 |
| 6 COTE D'IVOIRE (a)   | 922                         | 1200        | 800        | 0            | 0            | 0           | 200        | 10000         | 985                       | 1202                      | 10200000         | 0.09                 |
| 8 GHANA (a)           | 1134                        | 1814        | 1828       | 0            | 0            | 0           | 488        | 8409          | 1288                      | 1712                      | 13500000         | 0.10                 |
| 9 GUINEA (b)          | 1800                        | 480         | 480        | 0            | 0            | 3           | 47         | 11000         | 1473                      | 1917                      | 8225000          | 0.24                 |
| 10 MALI (b)           | 4800                        | 8480        | 8080       | 190          | 54           | 348         | 54         | 14000         | 5032                      | 6272                      | 7820225          | 0.66                 |
| 11 MAURITANIA (b)     | 1220                        | 3950        | 3350       | 880          | 148          | 400         | 0          | 3000          | 2791                      | 3083                      | 1946000          | 1.43                 |
| 12 NIGER (b)          | 3530                        | 3530        | 7530       | 414          | 290          | 505         | 38         | 14000         | 4823                      | 5488                      | 5886000          | 0.81                 |
| 14 SENEGAL (b)        | 2500                        | 2500        | 1200       | 7            | 200          | 200         | 200        | 10500         | 2532                      | 3177                      | 8397000          | 0.40                 |
| TOTAL                 | 28808                       | 28847       | 30718      | 1898         | 940          | 1949        | 2781       | 118509        | 31482                     | 39485                     | 81827930         | 0.38                 |
| EASTERN AFRICA        |                             |             |            |              |              |             |            |               |                           |                           |                  |                      |
| 16 ETHIOPIA (c)       | 26000                       | 23500       | 17280      | 1030         | 1580         | 3915        | 19         | 58000         | 27091                     | 33863                     | 46180000         | 0.59                 |
| 17 KENYA (c)          | 12000                       | 7000        | 8200       | 600          | 0            | 0           | 98         | 20000         | 10739                     | 14188                     | 21183000         | 0.51                 |
| 18 RWANDA (a)         | 680                         | 330         | 970        | 0            | 0            | 0           | 100        | 1050          | 823                       | 840                       | 5757000          | 0.11                 |
| TOTAL                 | 38680                       | 30830       | 26430      | 1630         | 1580         | 3915        | 215        | 77050         | 38453                     | 48871                     | 73100000         | 0.53                 |
| SOUTHERN AFRICA       |                             |             |            |              |              |             |            |               |                           |                           |                  |                      |
| 20 BOTSWANA (c)       | 3500                        | 500         | 1500       | 0            | 11           | 48          | 29         | 4100          | 2727                      | 3742                      | 990000           | 2.75                 |
| 21 MADAGASCAR (c)     | 10400                       | 800         | 1500       | 0            | 0            | 0           | 1400       | 15000         | 7920                      | 11310                     | 9985000          | 0.79                 |
| 24 TANZANIA (a)       | 14800                       | 4800        | 6500       | 0            | 0            | 170         | 180        | 28000         | 11491                     | 15555                     | 22482000         | 0.51                 |
| 25 ZAMBIA (c)         | 2800                        | 32          | 380        | 0            | 0            | 0           | 2855       | 2000          | 2450                      | 4087                      | 8730000          | 0.38                 |
| 28 ZIMBABWE (a)       | 5910                        | 590         | 2418       | 0            | 0            | 0           | 199        | 10000         | 4577                      | 6310                      | 12000000         | 0.38                 |
| TOTAL SOUTHERN AFRICA | 36710                       | 6022        | 12278      | 0            | 11           | 218         | 4683       | 59100         | 29166                     | 40983                     | 52167000         | 0.58                 |
| GRAND TOTAL           | 104178                      | 85899       | 69424      | 3528         | 2531         | 6077        | 7839       | 254859        | 99101                     | 129340                    | 207094930        | 0.48                 |

Note: (a) = 1987  
 (b) = 1988  
 (c) = 1985  
 (d) = 1984

STATISTICAL DATA ON VETERINARY HEALTH CARE IN A NUMBER OF SSA COUNTRIES (1985-1988)

| COUNTRY                   | Veterinarian<br>and<br>other higher<br>level | STAFFING STRUCTURE      |              |               |       | Total  | VLU Per<br>Veterinarian | VLU Per<br>support staff |
|---------------------------|--|-------------------------|--------------|---------------|-------|--------|-------------------------|--------------------------|
|                           |  | Medium level<br>support | Private Vet. | Other support |       |        |                         |                          |
| 1 1 BENIN (a)             | 83   | 172                     | -            | 160           | 415   | 18949  | 4737                    |                          |
| 1 2 BURKINA (b)           | 190  | 120                     | -            | 309           | 629   | 19321  | 3082                    |                          |
| 1 3 CAMEROON (b)          | 112  | 295                     | 4            | 597           | 1004  | 44473  | 5584                    |                          |
| 1 4 C.A.R (b)             | 48   | 267                     | -            | 36            | 349   | 43060  | 6536                    |                          |
| 1 5 CHAD (b)              | 79   | 76                      | -            | 816           | 971   | 56348  | 4990                    |                          |
| 1 6 COTE D'IVOIRE (a)     | 58   | 222                     | 6            | 1161          | 1441  | 20724  | 869                     |                          |
| 1 8 GHANA (a)             | 100  | 500                     | -            | 1000          | 1600  | 17122  | 1141                    |                          |
| 1 9 GUINEA (b)            | 159  | 435                     | -            | 552           | 1146  | 12057  | 1942                    |                          |
| 110 MALI (b)              | 244  | 260                     | 1            | 647           | 1151  | 25705  | 6915                    |                          |
| 111 MAURITANIA (b)        | 41   | 102                     | -            | 123           | 266   | 75195  | 13702                   |                          |
| 112 NIGER (b)             | 59   | 301                     | -            | 320           | 680   | 92636  | 8801                    |                          |
| 114 SENEGAL (b)           | 174  | 280                     | 5            | 451           | 905   | 18259  | 4346                    |                          |
| I I TOTAL                 | 1845   | 3040                    | 16           | 6172          | 10557 | 29357  | 4286                    |                          |
| EASTERN AFRICA            |  |                         |              |               |       |        |                         |                          |
| 116 ETHIOPIA (c)          | 99   | 84                      | -            | 975           | 1158  | 342051 | 15876                   |                          |
| 117 KENYA (c)             | 509  | 452                     | 4            | 4347          | 5308  | 27835  | 1467                    |                          |
| 118 RWANDA (a)            | 41   | 234                     | -            | 311           | 586   | 20488  | 936                     |                          |
| I I TOTAL                 | 649  | 770                     | 4            | 5633          | 7052  | 75302  | 3853                    |                          |
| SOUTHERN AFRICA           |  |                         |              |               |       |        |                         |                          |
| 120 BOTSWANA (c)          | 25   | 201                     | 3            | 392           | 618   | 149660 | 3704                    |                          |
| 121 MADAGASCAR (c)        | 63   | 193                     | 4            | 882           | 938   | 179624 | 6981                    |                          |
| 124 TANZANIA (a)          | 143  | 46                      | 9            | 2378          | 2567  | 108776 | 3146                    |                          |
| 125 ZAMBIA (c)            | 236  | 522                     | 0            | 70            | 828   | 17232  | 4529                    |                          |
| 126 ZIMBABWE (a)          | 55   | 150                     | 35           | 2550          | 2755  | 114729 | 1189                    |                          |
| I I TOTAL SOUTHERN AFRICA | 522  | 1112                    | 51           | 6072          | 7708  | 78512  | 2975                    |                          |
| I I GRAND TOTAL           | 2518   | 4922                    | 71           | 17877         | 25315 | 51407  | 2995                    |                          |

Note: (a) = 1987  
 (b) = 1986  
 (c) = 1985  
 (d) = 1984

STATISTICAL DATA ON VETERINARY HEALTH CARE IN A NUMBER OF SSA COUNTRIES (1985-1988)

| I    | I                       | I | I ALLOCATION OF EXPENDITURES |               |                    |               |            |                 | I          |
|------|-------------------------|---|------------------------------|---------------|--------------------|---------------|------------|-----------------|------------|
|      |                         |   | I Salaries                   | I Other Costs | I Salaries         | I Other Costs | I Exchange | I Salary Budget |            |
| I    | I COUNTRY               | I | I (Through National Budget)  | I             | I (local currency) | I rate        | I (US\$)   | I (US\$)        |            |
| I 1  | I BENIN (a)             | I | I 98.1%                      | I 1.9%        | I 315000000        | I 6000000     | I 300.00   | I 1050000       | I 20000    |
| I 2  | I BURKINA (b)           | I | I 99.2%                      | I 0.8%        | I 587193000        | I 5000000     | I 300.00   | I 1957310       | I 16667    |
| I 3  | I CAMEROON (b)          | I | I 78.6%                      | I 21.4%       | I 3001000000       | I 916000000   | I 300.00   | I 10003333      | I 3053333  |
| I 4  | I C.A.R (b)             | I | I 75.0%                      | I 25.0%       | I 228000000        | I 7600000     | I 300.00   | I 760000        | I 253333   |
| I 5  | I CHAD (b)              | I | I 72.6%                      | I 27.4%       | I 308000000        | I 116000000   | I 300.00   | I 1028667       | I 388667   |
| I 6  | I COTE D'IVOIRE (a)     | I | I 87.5%                      | I 62.5%       | I 2100000000       | I 3500000000  | I 300.00   | I 7000000       | I 11666667 |
| I 7  | I GHANA (a)             | I | I 48.9%                      | I 51.1%       | I 255184000        | I 288874000   | I 190.00   | I 1343074       | I 1404600  |
| I 8  | I GUINEA (b)            | I | I NA                         | I NA          | I NA               | I NA          | I 425.00   | I NA            | I NA       |
| I 9  | I MALI (b)              | I | I 90.7%                      | I 9.3%        | I 740100000        | I 76000000    | I 300.00   | I 2467000       | I 253333   |
| I 10 | I MAURITANIA (b)        | I | I 71.9%                      | I 28.1%       | I 56000000         | I 21900000    | I 78.00    | I 736842        | I 289158   |
| I 11 | I NIGER (b)             | I | I 59.2%                      | I 40.8%       | I 226698000        | I 156097000   | I 300.00   | I 755660        | I 520290   |
| I 12 | I SENEGAL (b)           | I | I 87.0%                      | I 13.0%       | I 1080607000       | I 161310000   | I 300.00   | I 3602023       | I 537700   |
| I 13 | I TOTAL                 | I | I 82.5%                      | I 37.5%       |                    |               |            | I 30701809      | I 18400748 |
| I 14 | I EASTERN AFRICA        | I |                              |               |                    |               |            |                 |            |
| I 15 | I ETHIOPIA (c)          | I | I NA                         | I NA          | I NA               | I NA          | I 2.07     | I NA            | I NA       |
| I 16 | I KENYA (c)             | I | I 54.3%                      | I 45.7%       | I 9368696          | I 7895679     | I 1.00     | I 9368696       | I 7895679  |
| I 17 | I RWANDA (a)            | I | I 69.3%                      | I 30.7%       | I 27573540         | I 12200980    | I 75.00    | I 367647        | I 162680   |
| I 18 | I TOTAL                 | I | I 54.7%                      | I 45.3%       |                    |               |            | I 9786343       | I 8058359  |
| I 19 | I SOUTHERN AFRICA       | I |                              |               |                    |               |            |                 |            |
| I 20 | I BOTSWANA (c)          | I | I 46.2%                      | I 53.8%       | I 9698500          | I 11308400    | I 1.70     | I 5705000       | I 6652000  |
| I 21 | I MADAGASCAR (c)        | I | I 74.1%                      | I 25.9%       | I 1260000000       | I 440000000   | I 1430.00  | I 881119        | I 307692   |
| I 22 | I TANZANIA (a)          | I | I 59.4%                      | I 40.6%       | I 141290000        | I 96578000    | I 96.00    | I 1471771       | I 1006021  |
| I 23 | I ZAMBIA (c)            | I | I 70.2%                      | I 29.8%       | I 11709400         | I 4978400     | I 12.70    | I 922000        | I 392000   |
| I 24 | I ZIMBABWE (a)          | I | I 52.9%                      | I 47.1%       | I 18000000         | I 18000000    | I 1.80     | I 10000000      | I 8888889  |
| I 25 | I TOTAL SOUTHERN AFRICA | I | I 52.4%                      | I 47.6%       |                    |               |            | I 18979890      | I 17246602 |
| I 26 | I GRAND TOTAL           | I | I 57.6%                      | I 42.4%       |                    |               |            | I 59418142      | I 43705709 |

Note: (a) = 1987  
 (b) = 1986  
 (c) = 1985  
 (d) = 1984

STATISTICAL DATA ON VETERINARY HEALTH CARE IN A NUMBER OF SSA COUNTRIES (1985-1988)

| COUNTRY                   | VETERINARY DRUGS<br>PURCHASED<br>By Government<br>(Local Currency) | VETERINARY DRUG<br>PURCHASED<br>(US \$) | EXPENDITURES ON VETERINARY<br>DRUGS PER TLU<br>(US \$) | NUMBER OF VACCINATIONS |            |         |         |                     |
|---------------------------|--|---|--|------------------------|------------|---------|---------|---------------------|
|                           |  |   |  | RP                     | %<br>Conv. | PCBB    | other   | S. Ruminants<br>PPR |
| 1 1 BENIN (a)             | 33000000 FCFA  | 112000                                  | 0.07   | 843355                 | 84         | 822084  | 1214553 | 128757              |
| 1 2 BURKINA (b)           | 287002074 FCFA   | 792007                                  | 0.22   | 1384922                | 49         | 1293048 | 956821  | 93247               |
| 1 3 CAMEROON (b)          | 360000000 FCFA   | 1200000                                 | 0.24   | 2000000                | 49         | 1480000 | 0       | 575000              |
| 1 4 C.A.R (b)             | 490000000 FCFA   | 1880000                                 | 0.84   | 1271018                | 71         | 885000  | 800000  | 0                   |
| 1 5 CHAD (b)              | 85000000 FCFA  | 283333                                  | 0.08   | 2198891                | 65         | 300000  | 200000  | 40523               |
| 1 6 COTE D'IVOIRE (a)     | 301000000 FCFA   | 1003333                                 | 1.04   | 686728                 | 72         | 2542    | 172000  | 181194              |
| 1 8 GHANA (a)             | 847871000 CEDIS  | 1828288                                 | 1.41   | 471000                 | 42         | 104000  | 21000   | 0                   |
| 1 9 GUINEA (b)            | - FG   | -                                       | -  | Na                     | -          | Na      | 228634  | 109031              |
| 1 10 MALI (b)             | 505888288 FCFA   | 1885844                                 | 0.27   | 1822771                | 40         | 1295859 | 1027997 | 71930               |
| 1 11 MAURITANIA (b)       | 20000000 UM  | 283158                                  | 0.09   | Na                     | -          | Na      | 413500  | 278000              |
| 1 12 NIGER (b)            | 180000000 FCFA   | 533333                                  | 0.10   | Na                     | -          | Na      | 2928874 | 857348              |
| 1 14 SENEGAL (b)          | 258084884 FCFA   | 880318                                  | 0.27   | 1538000                | 81         | 1538000 | 244100  | 45900               |
| I I TOTAL                 |  | 10221384                                | 0.32   | 111992685              | 42         | 7498311 | 8203979 | 2180928             |
| I I EASTERN AFRICA        |  |   |  |                        |            |         |         |                     |
| I 16 ETHIOPIA (c)         | -  | 0                                       | 0.00   | Na                     | -          | Na      | -       | -                   |
| I 17 KENYA (c)            | 17000000 KPLAND  | 1700000                                 | 1.58   | 2835974                | 24         | 488087  | 2500000 | 435712              |
| I 18 RWANDA (a)           | 50000000 rfr   | 688887                                  | 1.07   | Na                     | -          | Na      | 801252  | 132803              |
| I I TOTAL                 |  | 17688887                                | 0.48   |                        |            |         |         |                     |
| I I SOUTHERN AFRICA       |  |   |  |                        |            |         |         |                     |
| I 20 BOTSWANA (c)         | -  | 0                                       | 0.00   |                        |            |         | 1857000 | 125000              |
| I 21 MADAGASCAR (c)       | 800000000 fmg  | 419580                                  | 0.05   |                        |            |         | 2114837 | 1280000             |
| I 24 TANZANIA (a)         | 880000000 tshs   | 7083333                                 | 0.82   |                        |            |         | 8900892 | 10914               |
| I 25 ZAMBIA (c)           | -  | 0                                       | 0.00   |                        |            |         | -       | -                   |
| I 28 ZIMBABWE (a)         | -  | 0                                       | 0.00   |                        |            |         | -       | -                   |
| I I TOTAL SOUTHERN AFRICA |  | 7502914                                 | 0.28   |                        |            |         |         |                     |
| I I GRAND TOTAL           |  | 27888080                                | 0.28   |                        |            |         |         |                     |

Note: (a) = 1987  
(b) = 1988  
(c) = 1985  
(d) = 1984

**ANIMAL HEALTH SERVICES IN SUB-SAHARAN AFRICA  
INITIAL EXPERIENCES WITH NEW APPROACHES**

**STAFFING AND BUDGETS OF LIVESTOCK SERVICES IN 1975**

| COUNTRY                   | Higher level staff | Middle level staff | Support level staff | STAFFING STRUCTURE 1980 |          | Total staff  | WLU per staff  | WLU per support staff | Salaries (through National Budget) 1980 | Other Costs (US \$) 1975-1976 | ALLOCATION OF EXPENDITURES (US \$) 1975-1976 | GROWTH IN EXPENDITURE ON LIVESTOCK SERVICES 8 US at 1975 prices from 1971-1976 |         |
|---------------------------|--------------------|--------------------|---------------------|-------------------------|----------|--------------|----------------|-----------------------|---|-------------------------------|--|--|---------|
|                           |                    |                    |                     | Private                 | Pub.     |              |                |                       |   |                               |  |  |         |
| <b>WEST AFRICA</b>        |                    |                    |                     |                         |          |              |                |                       |   |                               |  |  |         |
| BEHIN                     | 43                 | 60                 | 104                 | -                       | -        | 204          | 29733          | 5043                  | 81 08                                   | 19 08                         | 493000                                       | 115000   | 6.428   |
| BURKINA                   | 12                 | 84                 | 288                 | -                       | -        | 382          | 290417         | 10891                 | 89 08                                   | 11 08                         | 753307                                       | 94036  | 2.375   |
| CAMEROON                  | 48                 | 191                | 308                 | -                       | -        | 506          | 88408          | 8781                  | 66 08                                   | 34 08                         | 1500000                                      | 900000   | 16.096  |
| C.A.R                     | 12                 | 80                 | 200                 | -                       | -        | 282          | 104603         | 6764                  | 66 08                                   | 46 08                         | 117000                                       | 96000  | 3.855   |
| DND                       | 24                 | 189                | 289                 | -                       | -        | 415          | 218192         | 12970                 | 83 75                                   | 16 26                         | 661009                                       | 129440   | 12.248  |
| COTE D'IVOIRE             | 83                 | 285                | 784                 | -                       | -        | 1082         | 18228          | 1162                  | 76 08                                   | 24 08                         | 2760000                                      | 871000   | 14.275  |
| GUINEA                    | 2                  | 81                 | 78                  | -                       | -        | 96           | 16976          | 3187                  | 72 08                                   | 28 08                         | 66000  | 30000  | 26.928  |
| GUINEA                    | 127                | 81                 | 808                 | -                       | -        | 901          | 12204          | 3281                  | n.a.                                    | n.a.                          | n.a.   | n.a.   | n.a.    |
| GUINEA                    | 66                 | 46                 | 205                 | -                       | -        | 317          | 28276          | 4416                  | n.a.                                    | n.a.                          | n.a.   | n.a.   | n.a.    |
| M.L.I                     | 78                 | 180                | 646                 | -                       | -        | 879          | 64128          | 7848                  | 68 18                                   | 31 98                         | 643118                                       | 254128   | 11.278  |
| MALITANIA                 | 9                  | 28                 | 128                 | -                       | -        | 165          | 248722         | 21272                 | 67 08                                   | 23 08                         | 876650                                       | 337448   | 23.748  |
| NIGER                     | 28                 | 134                | 289                 | -                       | -        | 451          | 148182         | 6383                  | 67 78                                   | 42 28                         | 663027                                       | 720842   | 18 028  |
| SENEGAL                   | 148                | 288                | 411                 | -                       | -        | 818          | 28844          | 5248                  | 83 88                                   | 18 88                         | 2802283                                      | 486412   | 8.858   |
| <b>TOTAL</b>              | <b>648</b>         | <b>1429</b>        | <b>4288</b>         | <b>-</b>                | <b>-</b> | <b>6426</b>  | <b>1668981</b> | <b>98627</b>          | <b>73.25</b>                            | <b>26.78</b>                  | <b>11087400</b>                              | <b>4882726</b>   |         |
| <b>EAST AFRICA</b>        |                    |                    |                     |                         |          |              |                |                       |   |                               |  |  |         |
| ETHIOPIA                  | 118                | 0                  | 623                 | -                       | -        | 741          | 297473         | 40844                 | 82 08                                   | 18 08                         | 1212000                                      | 264000   | 6.438   |
| KENYA                     | 244                | 281                | 2648                | -                       | -        | 3273         | 24488          | 4044                  | 43 08                                   | 87 08                         | 5212000                                      | 668000   | 8.128   |
| <b>TOTAL</b>              | <b>462</b>         | <b>281</b>         | <b>2481</b>         | <b>-</b>                | <b>-</b> | <b>4298</b>  | <b>328077</b>  | <b>44988</b>          | <b>47.28</b>                            | <b>52 88</b>                  | <b>6424000</b>                               | <b>7174000</b>   |         |
| <b>SUB-SAHARAN AFRICA</b> |                    |                    |                     |                         |          |              |                |                       |   |                               |  |  |         |
| BEHIN                     | 38                 | 0                  | 297                 | -                       | -        | 335          | 162228         | 11780                 | 23 08                                   | 67 08                         | 1106000                                      | 2242000  | (0.428) |
| BURKINA                   | 18                 | 0                  | 282                 | -                       | -        | 300          | 81888          | 2348                  | 28 08                                   | 62 08                         | 436000                                       | 708000   | 9.828   |
| CAMEROON                  | 48                 | 0                  | 718                 | -                       | -        | 806          | 22882          | 22882                 | 72 28                                   | 37 78                         | 2400000                                      | 1300000  | 7.898   |
| DND                       | n.a.               | 0                  | 98                  | -                       | -        | 98           | n.a.           | 19844                 | 48 08                                   | 88 08                         | 1760000                                      | 2464000  | 0.608   |
| COTE D'IVOIRE             | 83                 | 0                  | 285                 | -                       | -        | 368          | 181887         | 18887                 | 48 88                                   | 61 88                         | 2483408                                      | 822876   | (9.278) |
| <b>TOTAL</b>              | <b>188</b>         | <b>0</b>           | <b>1768</b>         | <b>-</b>                | <b>-</b> | <b>1980</b>  | <b>181214</b>  | <b>18888</b>          | <b>49 08</b>                            | <b>61 08</b>                  | <b>10423408</b>                              | <b>10888076</b>  |         |
| <b>GRAND TOTAL</b>        | <b>1208</b>        | <b>1789</b>        | <b>6688</b>         | <b>-</b>                | <b>-</b> | <b>12814</b> | <b>86687</b>   | <b>18888</b>          | <b>66.98</b>                            | <b>44.18</b>                  | <b>27934808</b>                              | <b>22811302</b>  |         |

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