Report of the Economics Unit

Submitted to the Sixth PACE Advisory Committee Meeting October 9 – 12, 2002-09-18

Report from the Economics unit for the Sixth PACE Advisory Committee Meeting, October 9 – 12, 2002

1. Year 3 Work Plan and Cost Estimate for the Economics Unit

As recommended by the Fifth Advisory Committee meeting, the third year work plan of the Economics unit was modified to focus on activities that contribute to the four thrusts of the PACE programme (see attached log frame). The unit's primary focus is to

(i) demonstrate the economic viability and sustainability of national epidemio-surveillance systems;
(ii) organise regional workshops to convince key financial decision makers on the need to increase budgetary allocations needed to sustain surveillance systems;
(iii) organise national training workshops to enhance national and regional capacities on economic impact assessment;
(iv) provide facts that justify investments in CBPP control through ex-ante economic analysis of CBPP control;
(v) collaborate with the VPLU and CAPE units to examine the different organisational models that exist for the delivery of veterinary services; and
(vi) Liaise with the Communication unit to publicise outcomes obtained from the Economics unit to inform policy decision makers in the livestock sub-sector.

The Economics unit has already initiated activities to address all the above points (see attached documents).

2. Access to national data on budgets, costs and expenditures linked to epidemiological activities and justification for veterinary services to fund national epidemio-surveillance systems on a sustainable basis.

Most PACE member countries are facing major economic and financial problems and are finding it difficult to adequately fund animal disease control and surveillance programmes. They have to choose from among many priority programmes and so rational decision-making is crucial. The questions they often ask are: Is it economically viable to invest limited financial resources in a disease surveillance programme? What are the returns to such investments? Decisions to invest in disease surveillance must be supported by facts and governments must be presented with sound arguments that will convince them that the benefits are superior to the costs.

The Economics Unit adopted a more pragmatic approach to address this issue. The first thing was to recognise that animal disease surveillance is a key function of the Departments of Veterinary Services (DVS) and that it is their duty to fund surveillance activities on a sustainable basis. It was also recognised that most DVS do not know the financial requirements needed to sustain surveillance activities. The second thing was to have access to data and information on the various aspects of surveillance in a number of PACE member countries. A formal questionnaire was developed in consultation with the PACE epidemiology unit for this purpose. A sample of twelve (12) PACE member countries was selected (see main report) and the questionnaire was mailed to them with instructions for completion. Country specific data and information were solicited on all aspects of epidemio-surveillance, expenditures incurred on surveillance activities and national government financial contributions to the PACE programme. Follow-up country visits were made to some of the countries (Chad,

Ethiopia and Kenya) and working sessions were held with the national epidemiologist and the PACE co-ordinator to complete the questionnaire.

The data and information provided in each questionnaire were used to estimate how much each country is spending on epidemio-surveillance. Based on the cost estimates the annual funding levels required to sustain surveillance activities defined by the epidemiologists were established. The funding levels were then compared with the government financial contributions proposed in the WPCEs submitted to PACE Co-ordination. This was done to see if the proposed contributions would be able to sustain future epidemio-surveillance activities. For most countries, the proposed financial contributions were far below the funding levels required for sustainability.

The cost estimates and funding levels needed to sustain national surveillance systems provide a basis for financial planning and budgeting by the DVS. They also provide the inputs required for developing further arguments (through benefit-cost analysis) to support investments in disease surveillance.

3. Emphasis on success stories and access to other models of epidemio-surveillance

National epidemio-surveillance systems (which are a part of the DVS) vary significantly from one country to another due to the different organisational structures of the parent ministries. Due to this complexity, a limited number of in-depth case studies were to be carried out in Chad, Ethiopia and Senegal. These were considered as "success stories" for which the Advisory Committee recommended that they should receive emphasis. Detailed data on the structure, function and cost of the epidemio-surveillance systems in Chad and Ethiopia have been collected and assembled. The data for Senegal is currently being collected.

Contacts have already been initiated with institutions such as CIRAD-EMVT and FAO who are currently working on similar topics for the exchange of information on methodologies. When the data from all three countries would have been assembled and the methodologies compared, they will be analysed.

4. Links with other PACE Common Services Units especially the Communications Unit

Results obtained from the case studies are expected to inform livestock decision-makers on the importance of increasing financial resources to the livestock sub-sector and therefore should be publicised. Preliminary results on the costs of surveillance in eight countries are currently being summarised for publication in the PACE newsletter published by the PACE Communications unit. The outcome of the knowledge transfer work on national training in economic impact assessment has already been published in the newsletter. The Economics and Communications units are jointly preparing the concept note for a regional workshop to sensitise decision-makers on the importance of funding national surveillance systems.

An *ex-ante* economic analysis of CBPP is currently being undertaken in collaboration with the PACE Epidemiology unit. Economic and epidemiological data were collected during background studies of CBPP in 12 countries. Through a consultancy, the epidemiology unit is developing additional epidemiological parameters on CBPP that will be used in a spreadsheet for the economic analysis of CBPP.

In collaboration with the CAPE and VPLU units, the Economics unit has initiated work on the evaluation of the economic importance of the different organisational models that exist for the delivery of animal health services in PACE member countries. Following a CAPE study of animal health service delivery in pastoral areas of Kenya, the Economics

unit completed a study of Public versus private sector performance in the delivery of animal health services in the medium and high potential agricultural areas of Kenya to complement that study (see attached document). Summaries of the findings are currently being made for publication in the PACE newsletter.

5. Knowledge transfer work

During the fifth ACM of the PACE program, it was noted that the knowledge transfer work should be seen in the context of the training approach of the programme. So far only six countries have received their national training. These are Kenya, Ethiopia, Senegal, Ghana, Uganda and Gambia. This is because there has been a slow uptake of donor funds by the national components due to various reasons. This has impacted negatively on the training on economic impact assessment work in those national components. Most national components are supposed to receive funding this year. Therefore national training workshops have been planned accordingly for Guinea-Conakry, Tanzania, Eritrea, Nigeria, Mali and Mauritania. In the meantime follow-up activities on in-country workshops in Ethiopia and Uganda are also planned for October and November 2002. Regional workshops for the two PACE program main regions (Eastern and Central/Western Africa) are also planned for the latter part of 2002 and 2003 respectively. Refresher courses lasting two weeks are also planned for early and mid 2003 for those project economists who are not well versed with economic theory and its applications with emphasis on animal health.

For sustainability reasons, the ACM recommended that the knowledge transfer work should be build upon the results of costing of the epidemio-surveillance systems and towards sustenance of livestock and animal health services in PACE member countries. For the model component, the training program so far embarked upon has stressed the rinderpest economic model as an example for other diseases. In the meantime models for other priority animal diseases being developed would also need to be transferred to the national components.

Constraint and recommendation

The current provision of the knowledge transfer work is only five months remaining as per the third year AWPCE of the PACE PCU and Common Services currently being implemented. In order to avoid gaps and delays in the knowledge transfer process for the enhancement of the national capacities in economic impact assessment of diseases in the national PACE projects, the sixth PACE ACM could recommend an extension of this work to the end of PACE program. This could be taken up in the up-coming mid-term review of the PACE program.

Costing of national epidemiological surveillance systems and funding levels required for their sustainability

PACE Economics Unit

September 2002

Introduction

1. The objective of the Pan African Control of Epizootics (PACE) program is to improve animal health services so as to increase livestock production and ensure food security in Africa. PACE is designed to build on the achievements of the Pan African Rinderpest Campaign (PARC) to eradicate rinderpest from Africa and to establish a sustainable system of epidemiological surveillance networks for effective control of epizootic animal diseases. PACE covers 32 sub-Saharan African countries and is funded principally by the European Union (EU) with the contribution of each of the 32 national governments.

2. PACE has a five-year life span that will end in 2004. After 2004, each country is expected to take over full funding of all the epidemiological surveillance activities of the programme. Epidemiological surveillance is an important activity of the Departments of Veterinary Services and therefore should be funded from national sources. The PACE financial agreement requires each national government to gradually increase its financial contribution to the program so that at the end of 2004 the full cost of the epidemiological surveillance system will be met from national sources. Funding of the networks must be continuous to ensure that countries enter and follow the OIE pathway for freedom from rinderpest infection and that other epizootics are effectively controlled.

The problem

3. Provision of adequate livestock and animal health services is essential for increasing livestock production in sub-Saharan Africa (SSA). Adequate budgetary allocation is required for this. But the size and timing of government releases of funds to livestock and animal health is a big problem. National budgets for livestock and animal health services are not only small, but are declining in absolute and relative terms every year. In a recent review of livestock and animal health budgets in six SSA countries (Cameroon, Ethiopia, Kenya, Mali, Tanzania and Uganda) the recurrent expenditure did not exceed 1% of the total national recurrent budget.

4. SSA governments have often been assisted by donor organizations such as the European Union (EU) to fund animal disease control programs. The problem is that there is too much dependence on donor funds and once these funds cease, disease control becomes non-sustainable. For example, the Joint Project (JP-15) was financed jointly by international organizations and national governments to eradicate rinderpest from Africa. The project successfully reduced the incidence of rinderpest in Africa and strengthened national veterinary services to respond to other diseases. When external financing ended in 1976, national governments found it difficult to provide services on a sustainable basis. Routine vaccination and disease surveillance declined and rinderpest reappeared in several parts of the continent.

5. To eradicate rinderpest from Africa, the PARC programme was initiated in 1986, again, with joint funding from national governments and donor organizations. By 1999 PARC had successfully controlled rinderpest from most parts of Africa. To avoid the post-JP-15 mistakes (inadequate funding and the resurgence of rinderpest), the EU, in collaboration with national governments, is funding the PACE programme. Its aim is to build on the achievements of PARC to finally eradicate rinderpest and to establish a sustainable system of epidemiological surveillance for effective control of epizootic animal diseases.

6. The challenge for national governments is whether they will be able to sustain their surveillance systems when the PACE programme comes to an end in 2004. At this moment, most Departments of Veterinary Services (DVS) do not know the financial requirements needed to sustain surveillance activities. They also do not know whether their investments into the systems will be economically worthwhile. There is a need therefore, to estimate the costs and establish the economic viability of national surveillance systems.

7. During its fifth meeting held in Bamako Mali, the PACE Advisory Committee (AC) recommended that IBAR should provide arguments for national veterinary services to justify use of resources for epidemiological surveillance as a means of sustaining the investment of PACE. The AC also recommended that the PACE Economics Unit should have access to national data on budgets, costs and actual expenditures linked to epidemiological activities that have the support and approval of the PACE epidemiologists. The data are to be analyzed to develop arguments to convince national governments to provide the funding necessary to sustain the surveillance systems.

8. This report provides information on the costs of establishing and operating an epidemiological surveillance system in eight PACE member countries (Chad, Ethiopia, Gambia, Ghana, Kenya, Nigeria, Tanzania and Uganda) and proposes appropriate funding levels for sustaining the systems. It also provides arguments for continued investments into the surveillance systems.

Method

9. A sample of eight (8) countries (Chad, Ethiopia, Gambia, Ghana, Kenya, Nigeria, Tanzania and Uganda) was selected from the 32 PACE member countries and a formal questionnaire was used to collect information on the epidemiological activities being carried out by each country. The process involved:

(i) Defining the various components of an epidemiological surveillance system;
(ii) identifying the activities required to have a fully functional system;
(iii) estimating the cost of carrying out each activity; and
(iv) establishing the annual financial requirements needed to sustain the activities.

10. In general, the components and activities defined by the epidemiologists included the following:

- The type and components of the surveillance system being costed
- The number and type of animal diseases involved
- The area, distance and animal population covered by the surveillance network
- The laboratory and field activities being carried out
- The number, type and category of staff and time devoted to surveillance activities
- The training, data collection, analysis and dissemination of surveillance information
- The equipment, materials and other resources used and
- The national plans for sustaining epidemiological surveillance

11. The questionnaire was mailed to each of the national PACE co-ordination units with instructions for completion using country specific data. Follow-up country visits were made to some of the countries (Chad, Ethiopia and Kenya) and working sessions were held with the national epidemiologist and the PACE co-ordinator to complete the questionnaire. The data provided in each questionnaire were analyzed and conclusions were drawn on the following:

    (i) The characteristics of each country's surveillance system, and
    (ii) the cost of carrying out surveillance.

12. The total cost of epidemiological surveillance was determined as the sum of the cost of equipment and materials used to carry out field and laboratory activities; the cost of personnel training, salaries, wages and allowances; and the cost of sample collection, analysis and dissemination of epidemiological information. The annual cost of equipment was determined taking into account the life span of the equipment used.

13. Based on the cost estimates, the annual funding levels required for sustaining epidemiological surveillance in each country were established. The funding levels were then compared with the government financial contributions proposed in the WPCEs submitted to PACE Co-ordination to establish whether the proposed contributions can sustain future epidemiological activities. For countries whose financial contributions are less than the required funding levels, economic arguments are developed (using epidemiological and economic modelling of rinderpest surveillance in Ethiopia) to convince the governments to provide adequate funds for surveillance activities.

General characteristics of the surveillance systems being costed

14. All the countries considered have an epidemiological surveillance system with both active and passive (except Chad) surveillance activities being carried out. Apart from Ethiopia where rinderpest is the only disease under surveillance, the surveillance system in the other countries covers a wide range of animal diseases (from 3 in Kenya to 12 in Uganda). Surveillance also covers the entire surface area of each country and the entire population of each livestock specie (Tables 1, 2 and 3).

15. The surveillance system being costed consists of three major components namely: A central epidemiological unit located at the DVS, diagnostic/screening laboratories, field teams and in some cases a mobile laboratory. All three components are available in each country and with the exception of Kenya, the other countries have no mobile laboratory. There is at least one diagnostic/screening laboratory in each country located at the DVS with as many as 3 (Gambia) to 56 (Uganda) at the regional level. The number of field teams varies from 3 in Ghana to 150 in Tanzania (see Tables 4 and 5).

16. The veterinary personnel who are involved in the epidemiological surveillance system are in both the public and private sectors including universities, research institutions and NGOs. A majority of the veterinarians are in the private sector (Kenya, Nigeria and Tanzania) whereas the majority of the laboratory and field technicians are in the public sector. The absolute number and relative proportion of veterinary personnel carrying out direct surveillance activities vary from one country to another. In Gambia and Ethiopia for example, only 2 (15%) and 35 (6%) of the veterinarians are involved respectively compared to 510 (14%) in Nigeria and 330 (49%) in Uganda (Tables 6 and 7). Two of the three laboratory technicians in The

Gambia do surveillance-related work. In Nigeria and Uganda, 27% and 84% of the laboratory technicians are involved respectively. Tanzania has all of its field technicians carrying out some form of surveillance whereas in Kenya, only 9% of the field personnel are involved.

17. For veterinary personnel carrying out surveillance activities, the proportion of time devoted to such activities varies from just 20% for veterinarians in Nigeria to 100% in Tanzania (Table 8). All laboratory technicians in The Gambia and Tanzania carry out surveillance activities on a full time basis. Except in Nigeria and Chad, all field technicians spend about half of their time on surveillance activities.

18. In a disease surveillance system, training is essential to ensure proper data collection and analysis. As well, the exchange of surveillance information is essential and therefore, needs to be considered in the costing of epidemiological surveillance. A number of epidemiological surveillance meetings, workshops and training sessions have already taken place in each of the countries. Kenya and Chad have so far trained 444 and 174 veterinary personnel on surveillance related activities respectively (Table 9). Ethiopia has held two epidemiology-related workshops but no surveillance-related training has taken place. In all the countries, field samples have been collected but analysis of the samples has taken place in only seven countries. Apart from Uganda where some samples have been analyzed abroad, all samples have been analyzed locally in the other countries and there has been exchange of surveillance information (Table 10).

Cost of national epidemiological surveillance systems

19. Table 12 presents the total and annual cost of surveillance for the sample of eight countries. These costs are at best estimates and will need to be revised as countries get clear guidelines from the PACE epidemiology unit on how to restructure their surveillance systems. For the moment, they give a good idea of what countries are currently spending to carry out epidemiological surveillance. The estimates also serve as a rough guide to the funding levels required by individual countries for sustaining their surveillance networks.

20. The annual cost of epidemiological surveillance varies significantly from one country to another. This is due to a number of factors among them the surface area and distance covered (Table 11), the animal population involved and the number and quality of personnel used. Annual cost varies from 72,000 Euros for The Gambia to about 4 million Euros for Nigeria (Table 12). Personnel cost (salaries and wages) accounts for more than 80% (Ghana, Nigeria, Tanzania and Uganda) of the total annual cost of surveillance (Table 13). Apart from The Gambia where equipment accounts for about half of the total annual cost of surveillance, equipment cost is insignificant in the other countries.

21. National co-ordinators were also asked to indicate whether their governments had plans to sustain the epidemiological surveillance activities after the PACE program comes to an end. All except The Gambia agreed that there were such plans in place (see Table 14).

National government contributions to PACE and the funding levels required to sustain national epidemiological surveillance systems

22. Countries were asked to provide information on their national government financial and non-financial contributions to PACE. The figures are summerized in Tables 15 and 16 respectively. The financial contribution from the Government of

The Gambia is just for one year (2002) and is 60,000 Euros while the non-financial contribution is 53,500 Euros. Ghana's financial contribution is for two years, beginning from 2003. The Governments of Kenya, Nigeria and Uganda have financial contributions for four years while the Government of Tanzania has a contribution for three years. It should be noted that these contributions differ significantly from the proposed government contributions presented in the WPCEs submitted to the PACE Co-ordination. The latter figures appear to be more credible since they represent commitments by national governments.

23. A review of WPCEs shows that presently, countries are at different levels of implementation of PACE. Twenty eight (28) countries have submitted at least one WPCE. Three countries (Cameroon, Democratic Republic of Congo and Equatorial Guinea) are about to begin implementation, twenty four (24) countries are in their second year of implementation and one country (Chad) is in its third year of implementation.

24. Analysis of the first and second year WPCEs shows that 14 of the 28 countries have budgeted for government contribution to PACE for the first year and only 11 countries for year two. The relative share of government contribution to the total annual budget varies widely (see Tables 17 and 18), ranging from 5% for Senegal to 54% for Ghana (year 1) and 62% for Eritrea (year 2). Five countries (Ethiopia, Gambia, Kenya, Nigeria and Tanzania) have shown the government's contribution for year one but not year two. Two countries (Mali and Togo) have not budgeted for year-one but have budgeted for year 2. Thirteen countries have not shown any contribution from the government (see Table 19).

25. The annual government financial contributions contained in the First yeart WPCEs of the eight countries were compared with the annual funding levels required to sustain epidemiological surveillance systems. The data are presented in Table 20. Except in two countries (Ethiopia and Ghana), the current levels of government contributions are far below the annual funding levels needed to sustain surveillance activities. Nigeria, Kenya, Uganda and Chad will require a significant increase in their contributions to be able to meet the required funding levels.

Is there a case for increased government investment in animal disease surveillance?

26. African governments and international programmes (e.g. JP-15 and PARC) have used mass vaccination campaigns to control rinderpest in Africa. Such mass vaccination campaigns have not only achieved a low level of coverage (30% on average), but have been quite costly. They bind up limited financial and human resources to tackle a single disease, whose initial prevalence and distribution is often unclear, to the total neglect of other priority animal diseases. The development of a cost-effective animal disease eradication program requires reliable disease intelligence. A good epidemio-surveillance system should provide such information and make it possible to target selective interventions as opposed to blind interventions of mass vaccination

27. But most governments are facing major economic and financial problems and are finding it difficult to adequately fund animal disease control and surveillance programmes. They have to choose from among many priority programmes and so rational decision-making is crucial. The questions they often ask are:

- Is it economically viable to invest limited financial resources in a disease surveillance programme?
- What are the returns to such investments?

Decisions to invest in disease surveillance must be supported by facts and governments must be presented with sound arguments that will convince them that the benefits are superior to the costs.

28. An *ex-ante* economic study incorporating inputs from epidemiological modeling of rinderpest in Ethiopia was used to compare the likely costs and benefits of a surveillance system with those of other options involving no intervention, institutionalized sub-optimal mass vaccination and a hypothetical intensive mass vaccination option. The results showed that vaccination and surveillance are economically viable. However, intensive mass vaccination and surveillance are economically more viable and preferable (BCRs = 5.18 and 3.86 respectively) to annual mass vaccinations with 30% and 37.5% coverage (BCRs = 2.12 and 2.70). Net benefits are estimated at €625,000 per annum (€7.5 million over the 12-year period) compared to €295,000 per annum (total 3.5 million) for 30% mass vaccination. The total societal change in economic surplus with 30% mass vaccination coverage is €11.6 million. At 37.5% societal gains would increase to €13.9 million. Total societal gains would be highest at €16.0 million with an intensive mass vaccination strategy whereas with epidemio-surveillance, society would benefit €14.3 million. Of the total economic surplus, about 60% would go to consumers and 40% to producers. The results indicate that mass vaccinations against rinderpest or targeted vaccination based on epidemiological surveillance information would be economically viable.

29. An epidemiological surveillance system has additional advantages beyond its economic superiority to indiscriminate mass vaccination campaigns in eradication programmes. An active surveillance system improves the performance and image of the veterinary department by maintaining a continuous link between farmers, field workers and veterinarians in the centers. Improved and regular communication between stockowners and veterinary staff is essential for promptly identifying other key animal health problems and responding to them appropriately.

30. An effective epidemiological surveillance system is also a requirement of the OIE Pathway for the verification of rinderpest eradication (OIE,1999). Countries that cannot demonstrate that an effective surveillance system is in place that would be capable of detecting rinderpest if it were present will not be awarded rinderpest infection-free status for the purposes of international trade. As a result, epidemio-surveillance systems are a requirement for countries to reap the full economic benefit of rinderpest eradication regardless of the intervention strategy used to eradicate the disease.

Conclusion and recommendations

31. A formal questionnaire was used to collect information from eight national PACE programmes to determine the cost of epidemiological surveillance that could serve as a reasonable guide to the funding levels required by national governments to sustain their surveillance systems. Eight countries responded to the questionnaire and the information presented here is summerized from the data provided by these countries. Taking into account several aspects of epidemiological surveillance, the annual cost was estimated to range from 72,000 Euros in The Gambia to about 4 million Euros in Nigeria. Personnel cost in terms of salaries and wages is the single largest component of surveillance cost accounting for more than 80% of the total annual cost in most countries. This means that countries need to re-examine the number and type of personnel that they involve in surveillance activities as it does

appear that not all the veterinary personnel claimed to be involved in surveillance are actually doing so.

32. It is obvious that well-equipped and functioning laboratories are crucial to effective epidemio-surveillance systems. The issue of strengthening national/central laboratories in PACE countries should receive adequate attention. National governments should begin to address this aspect through increasing funding to their livestock services while also searching for external support.

33. Information exchange is another important area which countries should begin to focus on. This aspect is closely linked to the development of an effective disease information system that filters through from the field to the national level. This should ensure fast transmission of disease information from the field level such that relevant steps could be taken to deal with the disease outcome.

34. The above issues and others emanating from the questionnaires will be explored further while discussions are expected to be held with the relevant livestock/veterinary services in various PACE countries towards lobbying for increasing and sustaining of the epidemio-surveillance activities.

Table 1. Type of surveillance activity being costed

Country	Existence of an Epidemio-surveillance. Network		Type of surveillance activity		
	Yes	No.	Active	Passive	Both
Chad	✓		✓		
Ethiopia	✓				✓
Gambia	✓				✓
Ghana	✓				✓
Kenya	✓				✓
Nigeria	✓				✓
Tanzania	✓				✓
Uganda	✓				✓

Table 2. Number and type of animal diseases being costed

Country	Number of diseases involved	Types of diseases involved
Chad	9	RDP, PPR, CBPP, CCPP, Tryps,
Ethiopia	1	Rinderpest
Gambia	6	n.a.
Ghana	5	RDP, CBPP, PPR, ASF, NCD
Kenya	3	RDP, CBPP, FMD
Nigeria	6	CBPP, PPR, FMD, NCD, ASF, RDP
Tanzania	10	RDP, CBPP, FMD, NCD, RABIES, AFS, TBDs, TRYPS, Brucelosis, BT.
Uganda	12	CBPP, FMD, RP, ASF, LSD, CCPP, TBDs, Antrax, NCD,RVF, Tryps, Rabies

Table 3. Area and animal population covered by network being costed

Country	Does network cover entire country?	Land area covered by network (km^2)	Animal population covered by network (1000 head)				
			Cattle	Sheep/goats	Poultry	Pigs	Others
Chad	Yes	1,284,000	5,300	6,163	24,000	25	500
Ethiopia	Yes	1,119,683	35,000				
Gambia	Yes	4,000	300	700	750	50	
Ghana	Yes	239,119	1,316	6,061	22,282	317	15
Kenya	Yes	625,000	11,748	18,500	27,790	500	960
Nigeria	Yes	924,000	13,900	56,000	100,000	13,400	1,000
Tanzania	Yes	945,000	16,400	15,132	47,000	800	
Uganda	Yes	241,548	5,200	6,700	23,000	1,080	65

Table 4. Components of surveillance network being costed

Country	Mobile lab ?		Central Epid. Unit		Diagnostic/screening labs.		Field teams	
	Exist	Funct.	Exist	Funct.	Exist	Funct.	Exist	Funct.
Chad	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Ethiopia	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Gambia	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Ghana	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Kenya	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nigeria	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Tanzania	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Uganda	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Table 5. Number of diagnostic/screening labs and field teams being costed.

Country	No. of diagnostic/screening labs.		Number of field teams
	At center	At regional level	
Chad	1	2	9
Ethiopia	1	9	9
Gambia	1	3	4
Ghana	1	9	3
Kenya	2	n.r.	15
Nigeria	1	12	n.r.
Tanzania	7	n.r.	150[1]
Uganda	1	56	56

[1] Includes district clinics and field veteterinary centers.

Table 6. Total number of veterinary personnel in the country

Country	Public sector			Private sector (including NGOs, Research institutes, etc)		
	Vets	Lab. Techs.	Field Techs.	Vets	Lab. Techs.	Field Techs.
Chad	56	74	265	21	30	
Ethiopia	408	98	911	158		
Gambia	13	3	210	12		
Ghana	152	31	607	56		
Kenya	576	67	3,375	807[1]		
Nigeria	1,600	170	1,200	2,100	350	250
Tanzania	135	200	2,230	343	35	
Uganda	382	15	1,216	288	16	n.r.

[1] Includes those in universities and research institutions

Table 7. Number of veterinary personnel involved in epidemio-surveillance network being costed.

Country	Veterinarians		Laboratory technicians		Field technicians	
	Number	% of total	Number	% of total	Number	% of total
Chad	17	30.4	27	36.5	145	54.7
Ethiopia	35	6.2	33	33.7	13	1.4
Gambia	2	15.38	2	67.00	36	17.14
Ghana	127	61.06	15	48.39	220	36.24
Kenya	122	8.82	25	37.31	311	9.21
Nigeria	510	13.78	140	26.92	1,107	76.34
Tanzania	99	20.71	150	63.83	2,230	100.00
Uganda	330	49.25	26	83.87	393	32.32

Table 8. Proportion of time spent and number of mission days undertaken by veterinary personnel involved in epidemio-surveillance

Country	Proportion of time (%)			Number of mission days/year		
	Vets	Lab. Techs.	Field Techs.	Vets	Lab. Techs.	Field Techs.
Chad	40	75	70			
Ethiopia	30	60	40	2,450	4,620	1,170
Gambia	50	100	50	100	120	120
Ghana	50	50	50	84	60	84
Kenya	70	50	50	48	48	48
Nigeria	20	50	100	84	120	300
Tanzania	100	100	50	n.r.	n.r.	n.r.
Uganda	40	80	60	100	260	260

Table 9. Epidemio-surveillance workshops and training

Country	Number of epid. Surv. Meetings and workshops	Personnel trained for epidemio-surveillance?	Number of personnel trained
Chad	1	Yes	174
Ethiopia	2	No	None
Gambia	3	Yes	30
Ghana	n.r.	Yes	140
Kenya	3	Yes	444
Nigeria	2	No	n.r.
Tanzania	2	Yes	12
Uganda	4	Yes	56

Table 10. Collection, analysis and exchange of epidemiological information.

Country	Number of samples		Where are samples analyzed		Is there exchange of information?	
	Collected	Analyzed	Locally	Abroad	Yes	No
Chad	3,815	3,592	✓		✓	
Ethiopia	18,000	18,000	✓		✓	
Gambia	15,000	15,000	✓		✓	
Ghana	4,500	2,500	✓		✓	
Kenya	37,000	10,000	✓		✓	
Nigeria	16,000	16,000	✓		✓	
Tanzania	12,000	n.r.	n.r.	n.r.	✓	
Uganda	10,000	10,000	✓	✓	✓	

Table 11. Distance covered during epidemio-surveillance

Country	Approximate distance from field to diagnostic lab. (km)	Distance covered during epidemio-surveillance (km)
Chad	500	n.r.
Ethiopia	10-200	n.r.
Gambia	200	100
Ghana	300	1,300
Kenya	380	59,800
Nigeria	150 – 800	
Tanzania	n.r.	n.r.
Uganda	700	

n.r. = no response

Table 12. Cost of epidemio-surveillance (Euros).

Country	Cost of equipment		Cost of materials	Cost of sample collection and analysis	Personnel cost	Allowances	Training cost	Total cost	Total annual cost
	Total	Annual							
Chad	353,660	68,900	30,490	40,550	203,003	104,710	18,300	750,713	465,953
Ethiopia	136,360	56,975	70,790	33,650	90,321	70,140	n.a.	401,261	321,876
Gambia	138,900	35,725	13,600	n.a.	32,955	1,660	1,744	188,859	72,124
Ghana	52,849	19,503	10,521	27,752	316,495	4,830	14,553	427,000	393,654
Kenya	185,974	37,195	68,091	245,623	1,087,802	399,931	45,573	2,032,994	1,884,215
Nigeria	420,634	106,397	74,365	29,694	3,844,441	23,384	n.a.	4,392,518	4,078,281
Tanzania	n.a.	n.a.	7,484	24,432	1,015,579	n.a.	n.a.	1,047,494	1,047,494
Uganda	83,550	17,430	42,500	40,000	889,642	12,285	15,000	1,082,977	1,016,857

Table 13. Percent of total cost of epidemiological surveillance (%)

Country	Percent of total cost							
	Equipment		Materials	Sample collection and analysis	Personnel	Allowances	Training	Total
	Total	Annual						
Chad	47.10	14.80	6.50	8.70	43.60	22.50	4.00	100.00
Ethiopia	33.98	17.70	22.00	10.45	28.06	21.80		100.00
Gambia	73.55	49.53	18.86		45.69	2.30	2.42	100.00
Ghana	12.38	4.95	2.67	7.05	80.40	1.23	3.70	100.00
Kenya	9.15	2.00	3.61	13.04	57.73	21.22	2.42	100.00
Nigeria	9.58	2.61	1.82	0.73	94.27	0.57		100.00
Tanzania			0.71	2.33	96.95			100.00
Uganda	7.66	1.71	4.18	3.93	87.49	1.21	1.48	100.00

Table 14. National plans for sustaining epidemio-surveillance

Country	Is there a plan to sustain epidemio-surveillance activities in the country?	
	Yes	No
Chad		✓
Ethiopia	✓	
Gambia		✓
Ghana	✓	
Kenya	✓	
Nigeria	✓	
Tanzania	✓	
Uganda	✓	

Table 15. National government financial contributions to PACE

Country	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Chad	0	114,330	121,950	129,270	
Ethiopia	305,980	253,508	207,019	672,034	520,850
Gambia		60,000ECU			
Ghana				2,422,637	2,434,187
Kenya		40,134	40,134	40,134	40,134
Nigeria		173,107	269,102	278,381	278,381
Tanzania	55,027	76,141	60,530		
Uganda	365,493	377,146	382,670	609,155	

Table 16. Value of other non-financial contributions

Country	2001-2002
Chad	476,707
Ethiopia	96,243
Gambia	53,500ECU
Ghana	462,621 (total)
Kenya	1,573,053 (total)
Nigeria	5,959,505 (total)
Tanzania	501,900 (total)
Uganda	834,807 (total)

Table 17. EU and national government financial contributions to PACE Year 1.

No.	Country	EU contribution	Government contribution	Total	Government as % of total
1	Senegal	492,818	30,492	523,310	5.83%
2	Uganda	1,202,756	124,600	1,327,356	9.39%
3	Gabon	272,655	29,130	301,785	9.65%
4	Kenya	1,126,606	148,000	1,274,606	11.61%
5	Chad	1,725,393	232,635	1,958,028	11.88%
6	Gambia	265,876	54,885	320,761	17.11%
7	Ethiopia	1,520,640	391,515	1,912,155	20.48%
8	Niger	364,138	117,516	481,654	24.40%
9	CAR	815,447	273,664	1,089,111	25.13%
10	Cote d'Ivoire	506,325	198,473	704,798	28.16%
11	Nigeria	719,243	285,516	1,004,759	28.42%
12	Tanzania	1,338,773	1,013,010	2,351,783	43.07%
13	Eritrea	493,306	402,027	895,333	44.90%
14	Ghana	342,788	409,384	752,172	54.43%

Table 18. EU and national government financial contributions to PACE Year 2.

No.	Country	EU cont.	Govt cont.	Total	Govt as % of total
1	Senegal	543,649	30,490	574,139	5.31%
2	Uganda	1,364,697	210,897	1,575,594	13.39%
3	Chad	870,361	134,859	1,005,220	13.42%
4	Cote d'Ivoire	350,633	76,225	426,858	17.86%
5	Gabon	243,885	76,435	320,320	23.86%
6	Niger	381,821	157,280	539,101	29.17%
7	Togo	220,582	122,508	343,090	35.71%
8	CAR	443,121	278,535	721,656	38.60%
9	Ghana	269,807	330,371	600,178	55.05%
10	Mali	240,801	323,357	564,157	57.32%
11	Eritrea	285,170	475,137	760,307	62.49%

Table 19. Countries with WPCEs that have national government financial contributions to PACE.*

No.	Countries with First Year Govt. cont. but no second year	Countries with Second Year Govt. cont. but no first year	Countries with both First and Second Year Govt. cont.	Countries without Govt. cont. for First and Second Year WPCEs.
1	Ethiopia	Mali	CAR	Benin
2	Gambia	Togo	Chad	Burkina Faso
3	Kenya		Cote d'Ivoire	Cameroon
4	Nigeria		Eritrea	Congo Brazzaville
5	Tanzania		Gabon	DRC
6			Ghana	Djibouti
7			Niger	Equatorial Guinea
8			Senegal	Guinea Bissau
9			Uganda	Guinea Conakry
10				Mauritania
11				Rwanda
12				Somalia
13				Sudan

* The government contribution provided by these countries covers the cost of personnel, utilities, running cost, some office equipment and exoneration. For the other countries the government still covers the cost of personnel and running costs but these have not been budgeted in the WPCE.

Table 20. National government financial contributions to PACE versus funding levels required to sustain epidemiological surveillance systems

Country	Government contributions		Annual funding levels required*	Required difference**
	Year one	Year two		
Chad	232,635	134,859	465,953	233,318
Ethiopia	391,515		321,876	-69,639
Gambia	54,885		72,124	17,239
Ghana	409,384	330,371	393,654	-15,730
Kenya	148,000		1,884,215	1,736,215
Nigeria	285,516		4,078,281	3,792,765
Tanzania	1,013,010		1,047,494	34,484
Uganda	124,600	210,897	1,016,857	892,257

* As per annual costs of surveillance system

** Difference with year one government contributions

Public versus private sector performance in the delivery of animal health services in Kenya

PACE Economics Unit

Draft

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Public versus private sector performance in the delivery of animal health services in Kenya

Introduction

1. Achieving food security and alleviating poverty is an important goal of all sub-Saharan African countries. With economies that are largely agriculture based, livestock are playing an increasing role in food supply and income generation. But this is not without problems. Most African Governments recognize this and are making frantic efforts to improve the quality and delivery of animal health services. The public sector is playing a dominant or exclusive role in this domain with State subsidies to support animal disease control and animal health activities accounting, on average, for over 70 percent of the total recurrent expenditures on livestock services (Anteneh, 1991; and de Haan and Nissen, 1985).

2. But governments are now finding it difficult to continue to provide free animal health services due to growing fiscal deficits. The quality of animal health services is deteriorating at a time when there is increased demand for better quality services. Many people now feel that other stakeholders from the private sector as well as farmers should be involved (Holden *et al.*, 1996; World Bank, 1995; Umali *et al* 1992). They argue that because the private sector is profit oriented, they will strive to be more efficient than the public sector which regards certain animal health services as a public good. They also argue that the farmers who benefit from the services should be made to pay for them. These arguments, along with tight fiscal budgets, are fueling the privatization and cost-recovery process in several countries. A recent review of the policies implemented under the Pan African Rinderpest Campaign (PARC) and Pan African Control of Epizootics (PACE) programmes indicates that the process of privatizing veterinary services is already taking place in 20 of the 35 PARC/PACE member-countries. In 23 of the countries, farmers are already partially paying for certain veterinary services while in 11 countries the private sector has the legal right to procure, supply and distribute veterinary products (Tambi and Maina, 2000).

3. As the debate over public versus private sector delivery of animal health services continues, more information is required on the effectiveness of each in service provision. Such information is needed to guide decisions on which of them should receive more support. The PACE programme aims to promote the delivery of animal health services and the supply of drugs to livestock owners by private veterinary practitioners and to enforce progressive cost-recovery in the public sector. In PACE member countries where both the public and private sectors have been providing animal health services to livestock owners, the range of services provided and the effectiveness of each sector in providing the services has not been properly assessed. As well, the benefits derived by livestock keepers from the services provided by each sector have not been adequately quantified.

4. The PACE Economics unit has the responsibility to evaluate the economic importance of the different organizational models that exist for the delivery of animal health services in PACE member countries. These include service delivery by the public and private sectors including private veterinarians and community based animal health workers. Case studies on the economics of public versus private sector delivery of animal health services are to be carried out in a sample of two countries in each of the three PACE sub-regions. This study, which is the first in a series to be followed later, attempts to compare the public sector versus the private sector in the provision of animal health services in Kenya. More specifically, it examines the range of services provided by public and private animal health practitioners and, from the perspective of livestock owners, the contribution of the services to livestock production and the benefits they derive from these services.

Livestock production and animal health services in Kenya

5. In Kenya agriculture and livestock are the dominant sectors that contribute 29 percent to the GDP and 19 percent of wage employment in the formal sector (EIU, 1996). Livestock account for 18 percent of agricultural GDP with an annual meat production of 330,000 MT and milk production of about 2,400 MT. There are about 12 million cattle, 10.2 million goats, 7.8 million sheep, 28 million poultry and 0.5 million pigs, giving a total of 14.3 million veterinary livestock units (VLUs). Three million of the cattle are grade dairy cattle while the rest consist of *Bos taurus* and *Bos indicus* (FAO, 1994; FAO, WHO, IOE, 1990). Eighty five percent of the grade cattle are kept by small-scale dairy farmers with herd sizes of less than five animals. The remaining 15 percent are found on large-scale commercial dairy farms.

6. Livestock production in Kenya falls under three different production systems that are mainly based on the different agro-ecological zones. The agro-ecological zones are derived from a combination of climate, soil, topography and vegetation. Land use for livestock production is divided into high, medium or low potential land depending on the amount of rain received and rates of evapo-transpiration. The high to medium potential agricultural area covers a small part of the total land area while the low potential areas or the arid and semi-arid lands (ASALs) cover 74% of the total surface area. The livestock production systems greatly determine the types and distribution of diseases. In the ASALs where traditional nomadic and transhumant pastoral systems prevail, animal movements have implications in the occurrence of contagious diseases. In the medium to high potential areas where open pastures are scarce and zero-grazing is more common, disease occurrence is also different. The prevailing production system therefore determines the delivery of animal health services.

Provision of animal health services

7. Until recently, the Government of Kenya (GoK), through the Department of Veterinary Services (DVS) has been the major provider of animal health services. Established in 1903, the DVS was given the specific mandate to control livestock diseases in the country. The main focus was on epizootic diseases namely Rinderpest, Contagious Bovine Pleuropneumonia (CBPP) and East Coast Fever (ECF). In 1906, the DVS assumed additional functions including Tsetse control, veterinary laboratory services, tick control, artificial insemination (AI), clinical services and veterinary public health (meat inspection). Since its creation, and up to 1989, the DVS has been the dominant player in the delivery of animal health services, providing services either free of charge or at highly subsidized rates. In the later part of the 1980s, there were strong signals that the government could no longer sustain these services. Service delivery began to deteriorate due to inadequate budgetary provisions and with the concurrent advent of the structural adjustment programmes (SAPs), a change of policy in the delivery of animal health services was inevitable. The ensuing policy change, defined in Sessional Paper No. 1 of 1986 - Economic Management for Renewed Growth, focused on a balanced policy mix based on public, private sector and beneficiaries' participation to build a viable and self-sustaining delivery system (Hubl *et al.*, 1998).

8. Following the provisions of Sessional Paper No. 1, the Government embarked on a number of reforms aimed at lessening the financial burden on the government while simultaneously ensuring an efficient and sustainable delivery of animal health services. The changes included the transfer of dip management to community dip committees, the provision of livestock drugs at cost, and the liberalization of veterinary and artificial insemination (AI) services. To foster private initiative and promote privatization, the government stopped automatic employment of new veterinary graduates in 1988 as a first step towards the transfer of services to private individuals. In January 1994 the government agreed to withdraw clinical services in catchment areas where private practices operate. Since then, the privatisation initiative has gathered steam in various ways. In a gradual but less organised manner, some of the unemployed veterinarians, animal health assistants (AHAs) and community based animal health workers began providing animal health services for a fee around towns and villages in the high potential areas of Kenya (Dolan, 1996).

9. To promote the concept of privatization, the Kenya Veterinary Association Privatization Scheme (KVAPS) was established in 1994 with funding from the European Union (EU) under the Pan African Rinderpest Campaign (PARC) programme. After five years of operation, an evaluation of the KVAPS showed for example, that private veterinary practice in the high and medium potential agricultural areas of Kenya is economically viable. The veterinarians are receiving a profitable margin for their services, livestock keepers are getting better services and there is a lesser financial burden on the government (Tambi *et al.*, 1999). Another evaluation of the economic viability of different models[1] of community-based animal health service delivery in northern Kenya concluded that "*the long term sustainability and economic viability of the community-based animal health service delivery systems are yet to be achieved, though some cases have shown strong indications of success. This notwithstanding, there is potential for growth, sustainability and viability*" (Okwiri *et al.*, 2001).

10. The transfer of services to private individuals has so far been based on a careful definition and selection of the types of services to privatize. According to the Kenya Agricultural Sector Investment Programme (ASIP), the delivery of animal health services is classified under three main headings namely: Purely public sector services, mixed services and private sector service. These are listed as follows:

    1. Purely public services
       - Enforcement of quarantine
       - Licensing and certification
       - Provision of hides and skins quality control
       - Provision of vaccine quality control
       - Control of notifiable diseases
       - Maintenance of auctions, holding grounds and stock routes (livestock movement control)
       - Formulation of policy guidelines, execution of policy analysis
       - Provision of extension in the use of farm inputs
       - Establishment of information networks
       - Provision of legal services to the ministry
       - Setting of sector-wide development priorities

    2. Mixed services
       - Provision of meat inspection
       - Provision of veterinary clinical services
       - Inspection of slaughter houses
       - Control of non-notifiable diseases
       - Provision of AI services
       - Control of ticks
       - Provision of veterinary laboratory services
       - Provision of farmer (livestock owner) training

    3. Private services
       - Production and distribution of semen
       - Production of vaccines
       - Management of dips and livestock crushes
       - Supply of farm inputs (including veterinary drugs)

10 Of the 1,383 veterinarians in Kenya, 576 are directly employed in the public service, 607 in universities, research institutions and pharmaceutical companies, 180 in private practice and 20 in NGOs (KVB, 2002). There are 2,240 laboratory and field technicians and about 1,200 other livestock officers. Table 1 shows the number of veterinary livestock units (VLUs) per person for each category

[1] The models evaluated are The association model, the private veterinary model, the animal health assistant model and the Duka model.

of animal health worker. Each veterinarian caters for about 10,000 VLUs while each laboratory and field technician caters for about 6,000 VLUs.

Methodology.

Study area

11 The Republic of Kenya has a total land area of 580,367 Km2, 18% of which is of high and medium potential for agricultural production. The country has seven provinces namely: Central, Coast, Eastern, Nairobi, Northeastern, Nyanza, Rift Valley Western. The survey area covers eight districts in four of these provinces (Table 2). The survey districts cut across the three different agro-ecological zones of ASALs, medium and high potential agricultural areas, thus offering a glimpse of the different production systems within which animal health services are being provided.

Sample selection

12 A combination of purposive and random sampling was used to select survey districts and households respectively. There was no sample frame from which to choose the households to be interviewed. However, based on human population distribution within each district and the distribution of animal health facilities, a representative random sample of 410 livestock keeping households was selected (Table 2). The number of households selected per district varied across the agro-ecological zones because of differences in human population density and distances between households.

Questionnaire development and administration

13 A formal questionnaire containing 32 closed and open-ended questions was developed to enable the respondents report freely and give reasons for their answers. The questionnaire covered the general socio-economic characteristics of the respondents; the animal disease situation; the types of animal health service providers and the services they provide; the expenditures incurred and willingness to pay for services; and the benefits derived from the services provided. The pre-tested questionnaires were administered by enumerators who were trained and supervised by a senior veterinarian.

Data extraction and analysis

14 Prior to data extraction, each pre-coded questionnaire was screened for inconsistencies, omissions and differences in interpretation. This was done using notes taken during the interviews. In all, 17% of the total number of questionnaires was discarded. After the screening process, the output produced from the 341 questionnaires was a complete set of absolute and relative frequency tables giving the counts and proportions of respondents per question. The data were analyzed and measures of central tendency computed using the Excel Computer Program.

Results

Household socio-economic characteristics

15 Socio-economic characteristics of the households are summarized in Table 3. Seventy seven percent of them were men and 23 percent women. The average age was 49 with a maximum age of 72 years and a minimum of 20 years. The average age varied from 40 in Samburu district to 56 in Thika district. Only one percent was within the age of 20 and 29 years while 22 percent were within the category of 30 to 39 years old. About 47 percent were older than 50 years. These result indicate that those practicing farming are generally middle aged with 73 percent falling within the age bracket of 40 to 70 years (Annex 1).

16 Regarding education, 5% had attained university. One fifth had high school education, 32% secondary and 26% primary school education. Fourteen percent had attained some form of adult education. Almost all the respondents were Christians. Only 2% were of the other religious affiliations.

17 Table 3 shows the household structure by age and sex category. The average household size was 6 persons with a maximum of 16 persons and a minimum of one person. Nyandarua district had the largest average household size of 8 persons while Mbeere had the smallest household size of 4 persons. On average each household had two adults and 4 children.

18 Occupation wise, 61% of the respondents were engaged in farming as a major occupation while 33% were engaged in either small business, craft or some other wage employment. Farming is a secondary occupation to 32% of the respondents while 16% and 11% had business, craft and wage employment as their secondary occupation. These results confirm the fact that farming, including livestock keeping, is the major occupation of most people in the rural areas of Kenya.

19 Household income averaged KSh 12,260 per month with a maximum income of KSh 100,000 and a minimum of 100 KSh per month. Low monthly incomes were reported by families living in Mbeere district (Kshs 3,290), which is a marginal agricultural area highly dependent on crop production. About 60% of the respondents reported an income of less than KSh 10,000 per month. This is a reflection of low farm incomes in many families in the rural areas of Kenya.

Type and number of livestock raised

20 All the respondents raised cattle, sheep, goats, and local poultry. Other livestock kept included donkeys, rabbits and ducks. In the ASAL districts of Samburu and Narok, cattle were predominantly indigenous zebu and depending on the age of the respondent, the number of cattle per household varied from 6 to 250. In the marginal district of Mbeere cattle were predominantly zebu and their crosses. Pure bred exotic cattle and their crosses were kept in Nyandarua, Chuka and Thika.

21 In Nyandarua, Chuka, Thika and Mbeere, the number of sheep and goats kept per family varied from 2 to 10. One farmer in Nyandarua had a flock of wool sheep numbering 112. In Narok and Samburu the flocks of sheep varied from 50 to 500 per household. All the respondents had a flock of indigenous poultry varying from 5 to 25.

22 All respondents reported a decrease in the number of cattle during the last two years. The main reason for a decrease was deaths associated with the lack of feed due to drought from 1999 to mid 2001. Other reasons included diseases and sale of livestock. The number of poultry did not fluctuate much.

Common diseases reported.

23 The most common cattle diseases reported in the high and medium potential districts were tick-born diseases especially East coast fever, calf enteritis and pneumonia, mastitis, foot rot, FMD, helminths (flukes), bloat and plant poisoning. In the arid and semi-arid districts of Narok and Samburu the most common cattle diseases reported were tick-born diseases especially East coast fever, heart water and babesiosis, tick infestation, FMD, eye lesions (during the dry weather), Black Quarter, anthrax, trpanosomosis, bloat and Lumpy Skin Disease.

24 For sheep and goats the most common diseases reported were helminthosis in high agricultural areas and tick infestation, heartwater, enterotoxaemia, orf, mange, CBPP, flea infestation, foot rot, and sheep pox in Samburu and Narok. Foot and mouth disease was reported as common in sheep in Narok district.

25 Local poultry presented no particular disease problem but fowl typhoid and New Castle disease wiped out, occasionally, most flocks. Other common diseases reported included coccidiosis, fowl pox and worms.

26 Respondents in Narok reported that anthrax and CBPP were a problem five years ago but they are not so today. In Mbeere district ECF, BQ, anthrax and LSD was a problem some five years ago but are no longer a problem today. Rinderpest disease is no longer a problem as far as the respondents were concerned.

27 Although ECF in calves, BQ, anthrax and enterotoxaemia have always been a problem in Samburu district, the diseases are now more frequent than the last five years, and especially so after the drought. Tick-borne

diseases are now being experienced more in Nyandarua district than five years ago. Gumboro disease in poultry is a new disease to farmers who are keeping exotic poultry. African swine fever was not a problem but has been confirmed in pigs recently in Kenya.

Animal health services and providers.

28 The services provided to livestock keepers by animal health workers can be classified into five main categories namely: Clinical services, artificial insemination, vaccination, sales of drugs and advice on improved animal husbandry. These services are provided by government and private veterinarians, animal health assistants, community animal health workers, non-governmental organizations, agro-vet shops/pharmacies and animal production officers. The results are summarized in Table 4.

29 Private veterinarians and animal health assistants jointly provide clinical services to about 80% of livestock keepers. Government veterinarians provide clinical services to just 23% of the livestock keepers. Private veterinarians play a significant role in the provision of artificial insemination services. Together, government veterinarians and animal health assistants provide AI services to the same proportion of livestock keepers as private veterinarians. Non-governmental organizations also play a role in the provision of AI services. Vaccination appears to be an exclusive service provided by government veterinarians and animal health assistants. Three quarters of the livestock keepers acquire drugs from agro-vet shops and pharmacies while private veterinarians and animal health assistants each sells drugs to one third of the livestock keepers. As far as advice on improved animal husbandry is concerned, most livestock keepers receive such advice from animal health assistants followed by agro-vet shops and pharmacies and then private veterinarians.

Frequency of visits to the livestock keepers by the service providers

30 Respondents were asked to indicate the frequency with which they were visited by each of the service providers. No livestock keeper received a visit from a government veterinarian in the last two months prior to the survey. About one third of the livestock keepers received a visit from a government veterinarian more than six months prior to the survey. Another one third received a visit more than one year ago. Even though the visits from the government veterinarian were infrequent, most respondents reported that the government veterinarian not only vaccinated, provided clinical services but also gave advice on disease control. The government veterinarian spent more time with the livestock keeper than other service providers whenever he/she got an opportunity to visit the farmer.

31 Private veterinarians visited one fifth of the livestock keepers within the last two months and about 66% of them 3 to 6 months ago. Animal health assistants visited 15% and 42% of the livestock keepers last month and three months ago respectively. According to 88% of the livestock keepers, community animal health workers were the most frequent service providers with most of their farm visits occurring within the three months preceding the survey.

Who provided the best service

32 Respondents were asked to rate which service provider contributed the most to the health status of their livestock. As shown in Table 6, more livestock keepers felt that animal health assistants provided the best services in terms of their contribution to the health status of their animals. Private veterinarians were next, followed by government veterinarians and community animal health workers in that order. The rating of animal health assistants as the best service providers is not surprising given that they, together with community animal health workers, were the most frequent service providers.

Changes in livestock production and the contribution of service provider

33 Over half of the respondents reported an increase in the number of cattle, sheep and goats whereas all those who produced milk reported an increase in the quantity of milk during the last two years. More than 90% reported an increase of 5 to 20 litres of milk per day. For those who reported a reduction in livestock numbers and milk, drought was the major cause. From the perspective of livestock keepers, the importance

of each animal health service provider was assessed in terms of the contribution of the health service to the increase in livestock production taking into account other factors. As shown in Table 7, 37%, 24% and 19% of the respondents felt that improved animal health played a role in the increase in milk, sheep/goats and cattle numbers respectively. Majority of the livestock keepers felt that improved management and better nutrition were also responsible for the increase in livestock numbers and milk. Good pastures as a result of more rains recorded from the first quarter of the year 2001 contributed immensely to the nutrition and health of livestock.

34 Of the total number of livestock keepers who felt that animal health services played a positive role in livestock production, 63% of them attributed the increase in cattle numbers to the activities of animal health assistants (paravet)[2] and community animal health workers (Table 8). Seventy seven percent attributed the increase in sheep/goats to these same service providers. Private veterinarians were next, followed by government veterinarians. Over 80% of the respondents attributed the increase in milk to the activities of government veterinarian and animal health assistants.

Benefits of animal health services to livestock keepers

35 Apart from the contribution of animal health services to the increase in livestock numbers and milk, livestock keepers reported other non-quantifiable benefits. Ten of such benefits were identified and are listed in Table 9. Each one was assigned a value of ten points if respondents felt that it applied to a particular service provider. As can be seen, animal health assistants scored highest with 80 points. Livestock keepers felt that they were easily accessible, always available, less expensive, quick to respond and on time, well known and could provide advice. Private veterinarians scored second with 60 points followed by community animal health workers and government veterinarians in that order. Whereas private veterinarians were always available and on time, had adequate facilities and were efficient, government veterinarians had only three advantages in that they were less expensive, efficient and could provide advice when available.

36 Apart from assessing benefits, respondents were asked to assess each service provider in terms of the problems and difficulties they face with each. Fourteen criteria were developed and each assigned ten points. The results are presented in Table 10. Even though animal health assistants and community animal health workers provided services that were of benefit to livestock keepers, some livestock keepers felt that these service providers were disadvantaged in several respects. They lacked the appropriate facilities including tools and drugs, were less competent and thus required the help of a veterinarian. Private veterinarians were only seen as being expensive and not providing advice. Government veterinarians on the other hand had several weaknesses including not having drugs, means of transport and fuel. In places where non-governmental organizations existed, lack of follow-up was cited as a major problem whereas agro-vet shops were accused of not capable of giving appropriate advice.

[2] There is confusion with the farmers as to who is a paravet. The livestock keeper in the rural areas calls any one who treats his animals a *daktari*. But when all else fails, the veterinarian is called upon to perform a miracle. Such miracles include re-sustaining an animal that has failed to respond to treatment by the *daktari* or the farmer

Table 1. Number of veterinary livestock units (VLUs)* per animal health worker in Kenya, 1990 and 1994.

Category of animal health personnel	Animal health personnel[1]	Veterinary livestock units per animal health personnel
Veterinarians	1,383	10,340
Laboratory and field technicians	2,240	6,384
Other livestock officers	1,202	11,897

[1] Source: Department of Veterinary Services, Kabete.
* One VLU is equivalent to 1 cow, 2 pigs, 10 small ruminants or 100 chickens

Table 2. Survey districts and number of households interviewed

Agro-ecological zone	Province	District	Households Per district	Total
Arid and Semi-arid Lands	Rift Valley	Narok Samburu	40	80
Medium potential	Central Eastern	Mbeere Thika Machakos	50	150
High potential	Central Western	Nyandarua Meru Kakamega	60	180
Total	4	8		410

Table 3. Household socio-economic characteristics

Variable	Percent	Number
Sex:		
Male	77.4	264
Female	22.6	77
Age:	Number of years	
Average	49 (± 13.5)	
Maximum	72	
Minimum	20	
Education:		
University	5.0	17
High school	24.0	82
Secondary school	31.0	106
Primary school	26.0	88
Adult school	14.0	48
Religious affiliation:		
Christians	99.0	338
Muslims	0.6	2
Others	0.4	1
Household size:	Number of persons	
Average	5.8	
Maximum	16.0	
Minimum	2.0	
Major occupation		
Farming	60.8	207
Wage earning	16.7	57
Business	16.0	54
Secondary occupation:		
Farming	33.0	112
Wage earning	11.2	38
Business	16.7	57
Income	Kshs per month	
Average	12,260	
Maximum	100,000	
Minimum	100	

Table 4. Percent of households receiving various animal health services from different service providers.

Service provider	Type of service				
	Clinical service	Artificial insemination	Vaccination	Drug sales	Advice on husbandry methods
Government veterinarian	22.5	16.1	62.0	2.2	15.9
Private veterinarian	42.5	30.3	0.0	32.3	16.4
Animal health assistant	37.8	13.5	28.0	35.6	30.3
Community animal health worker	8.2	0.0	0.0	0.6	9.0
Non-governmental organization	0.0	13.4	0.0	0.0	6.5
Agro-vet shop/pharmacy	0.0	0.0	0.0	75.3	17.3
Animal production officer	0.0	0.0	0.0	0.0	2.3

Total respondents = 286.

Table 5. Percentage of livestock keepers visited by animal health service providers at various times of the year.

Time of visit	Government veterinarians	Private veterinarian	Animal health assistant	Community animal health worker
This month	0.0	4.0	0.0	11.0
Last month	0.0	16.0	15.0	44.0
3 months ago	15.0	36.0	42.0	33.0
> 6 months ago	32.0	32.0	15.0	11.0
Once this year	21.0	12.0	37.0	0.0
> a year ago	10.0	0.0	0.0	0.0
Best service provider	26.9	29.3	34.1	22.5

Remarks: Total respondents were 285

Table 6. Best service provider and contribution of service provider to livestock production.

Service provider	Percent of livestock keepers who rate service provider as the best
Animal health assistant	34.1
Community animal health worker	22.5
Government veterinarian	26.9
Private veterinarian	29.3
Non-governmental organization	10.0

Table 7. Reasons for increase in livestock numbers.

Reason	Cattle	Sheep and goats	Milk
Improved health	19.0	24.0	37.0
Better nutrition	37.0	25.0	32.0
Improved management	33.0	24.0	41.0
Births	11.0	18.0	0.0
Purchases	6.0	6.0	0.0
Gifts	0.0	2.0	0.0

Table 8. Contribution of service provider to livestock production.

Service provider	Percent of livestock keepers who attribute increase livestock production to service provider		
	Cattle	Sheep and goats	Milk
Animal health assistant	38.0	53.0	50.0
Community animal health worker	25.0	24.0	3.0
Government veterinarian	12.0	8.0	16.0
Private veterinarian	16.0	14.0	31.0
Non-governmental organization	4.0	0.0	0.0

Table 9. Non-quantifiable benefits derived from animal health service providers.

Benefits	Government veterinarian	Private veterinarian	Animal health assistant	Community animal health worker	Non-governmental organization	Animal production officer	Agro-vet shop
Cheap	Yes		Yes	Yes			
On time		Yes	Yes				
Efficient	Yes	Yes					
Available		Yes	Yes				Yes
Nearer to the farmer			Yes	Yes			
Gives advice	Yes*		Yes		Yes	*Yes	
Accessible		Yes	Yes	Yes			Yes
Better known			Yes	Yes			
Has facilities		Yes					
Quick to respond		Yes	Yes				
Total points	30	60	80	40	10	10	20

* When available

Table 10: Problems and difficulties encountered with service providers.

Problem	Government veterinarian	Private veterinarian	Animal health assistant	Community animal health worker	Non-governmental organization	Animal production officer	Agro-vet shop
Not available	Yes				Yes	Yes	
No facilities			Yes	Yes	Yes	Yes	
Expensive		Yes					
No drugs	Yes		Yes	Yes	Yes	Yes	
No follow up					Yes		
Never seen	Yes					Yes	
Sometimes not available				Yes			
No tools			Yes	Yes			
Not competent enough			Yes	Yes			
Needs advice from veterinarian			Yes	Yes			
Gives no appropria advice							Yes
No transport	Yes						
Needs fuel	Yes						
Does not give advi		Yes					
Total points	50	20	50	60	40	40	10

Table 2. Sex and age distribution of the respondents

Sex and age category	Nyandarua	Machakos	Samburu	Chuka	Mbeere	Narok	Thika	All districts
Sex %								
Male	82	63	90	85	64	88	70	77.4
Female	18	37	10	15	36	12	30	22.6
Number	58	55	37	58	47	38	48	341
Average age	56		40	48	53	44	56	49.0
±	15		10	14	17	15	10	13.5
Maximum	72	69	57	63	71	61	71	72
Minimum	40	41	30	30	32	20	42	20
%of this age group								
20-29	0	0	4	0	0	7	0	1.5
30-39	0	16	56	16	29	14	16	21.0
40-49	27	36	17	24	39	18	28	27.0
50-59	36	23	19	42	22	47	33	31.7
60-69	18	13	4	16	7	14	8	11.4
> 70	19	12	0	2	3	0	15	7.6

Table 3. Education level and religious affiliation of the respondents

% with this level of education	Nyandarua	Machhakos	Samburu	Chuka	Mbeere	Narok	Thika	All districts
University	12	6	0	0	2	0	15	5.0
High school	9	28	30	25	13	21	48	24.8
Secondary	35	30	23	30	17	32	22	31.6
Primary	18	28	32	15	46	35	9	26.1
Adult	6	8	15	30	22	12	6	14.1
Number	58	55	37	58	47	38	48	341
Religious affiliations %								
Christians	100	100	100	100	96	98	100	99.1
Muslims	0	0	0	0	4	0	0	0.6
Others	0	0	0	0	0	2	0	0.3

Table 1. Household size and structure

Household size	Nyandarua	Machakos	Samburu	Chuka	Mbeere	Narok	Thika	All districts

Average	8	6	6	6	4	6	5	5.8
Maximum	16	9	12	8	8	11	6	10.0
Minimum	1	4	2	2	1	3	2	2.0
Number	58	55	37	58	47	38	48	341
Children < 21 years per household								
Male	1-6	2-4	1-2	1-4	1-4	1-4	1-2	1-6
Female	1-8	0-3	1-4	1-3	1-3	1-5	1-2	0-5

Table 4. Occupation distribution

Major occupation: %	Nyandarua	Machakos	Samburu	Chuka	Mbeere	Narok	Thika	All districts
Farming	56	76	96	50	93	71	29	60.8
Wage earning	18	16	2	42	5	16	18	16.7
Business	26	8	2	8	2	13	53	16.0
Number	58	55	37	58	47	38	48	341
Secondary occupation: %								
Farming	36	39	0	67	7	29	53	33.0
Wage earning	18	22	0	8	5	0	26	11.2
Business	18	16	28	17	7	13	18	16.7

Table 5: Average household income and frequency distribution of the income

Household income (KSh)	Nyandarua	Machakos	Samburu	Chuka	Mbeere	Narok	Thika	All districts
Average	10,000	15,000	7,000	10,500	3,190	10,125	30,000	12,260
Maximum	22,000	55,000	21,000	20.000	10,000	35,000	100,000	100,000
Minimum	3,000	6,000	3,000	2,000	100	2,000	5,000	100
% within this income level								
> 15,000	9	20	12	10	0	16	56	18.1
11-14,000	15	30	12	12	10	16	30	17.8
6-10,000	31	40	41	20	13	32	24	25.8
2- 5,000	36	10	25	36	28	36	10	24.4
< 2,000	9	0	10	9	49	0	0	11.0
Number	58	55	37	58	47	38	48	341

Table 7: Percent of respondents in various districts provided drugs by various service providers

% of respondents per district	Govt. Vet	Private Vet	AHA (paravet)	CAHW	Agro-vet/ Pharmacy	Animal Production Office
Mbeere	0	29.3	24.1	0	55.4	0
Chuka	0	55.2	25.4	0	83.2	0
Samburu	7.3	0	57.6	0	86.1	0
Narok	3.2	3.2	29.7	4.4	94.2	0
Nyandarua	0	47.8	81.3	0	81.7	0
Thika	0	40.1	10.9	0	60.6	0
Machakos	5.2	50.2	20.1	0	66.2	0
Average	2.2	32.3	35.6	0.6	75.3	0

Remarks: Total respondents were 341

Table 8: Percent of respondents in various districts given advice on disease control by various service providers

% of respondents per district	Govt. Vet	Private Vet	AHA (paravet)	CAHW/ Self	Agro-Vet/ Pharmacy	Animal Production Officer
Mbeere	14.6	9.2	21.9	0	7.3	0
Chuka	16.7	10.6	25.3	0	26.3	0
Samburu	85.6	6.1	57.4	0	28.5	0
Narok	6.4	3.2	61.9	25.8	38.7	0
Nyandarua	36.4	9.1	45.5	0	18.2	0
Thika	36.1	60.5	28.1	0	30.2	0
Machakos	40.3	15.6	10.2	0	15.5	0
Average	33.7	16.3	35.7	3.6	23.5	0

Remarks: Total respondents were 341

Table 9: Percent of respondents in various districts given advice on livestock management including breeding and pasture by various service providers

% of respondents per district	Gov. Vet	Private Vet	AHA (paravet)	CAHW/ Self	Agro-Vet/Pharmacy	NGO	Animal Production/ Agricultural Officer
Mbeere	2.4	12.5	15.2	0	7.3	3.1	0
Chuka	13.6	11.3	56.7	0	25.3	5.6	0
Samburu	7.3	2.3	15.5	3.1	6.2	8.1	0
Narok	3.2	4.1	48.5	51.6	22.7	5.2	9.6
Nyandarua	9.1	11.3	27.3	0	29.6	6.0	1.0
Thika	45.1	55.8	20.8	0	12.5	14.6	4.0
Machakos	31.2	18.1	28.1	8.3	18.1	3.2	2.1
Average	15.9	16.4	30.3	9.0	17.3	6.5	2.3

Remarks: Total respondents were 341

Table 10: Percent of respondents in various districts given Artificial Insemination service by various

service providers

% of respondents per district	Gov. Vet	Private Vet	AHA (paravet)	NGO
Mbeere	0	14.6		7.3
Chuka	0	83.1	16.7	0
Samburu	0	0	0	0
Narok	0	0	18.6	17.6
Nyandarua	36.4	63.6	45.6	55.7
Thika	60.2	20.5	0	0
Average	16.1	30.3	13.5	13.4

Remarks: Total respondents were 286

Table 11: service providers and the service they provide

% of respondents receiving service from and for	Govt. Vet	Private Vet	AHA (paravet)	CAHW	NGO	Animal production officer	Agro vet
Clinical diagnosis	9	24	31	13			
Drugs	4	28	33	1			75
Vaccinations	62	-	28	-			
Vaccines	62	-	35	-			
Advice on disease control	22	11	40	9			15
Advice on Management	8	12	17	12			7
AI	4	23	12		8		
Pasture management			3			3	

Remarks: Total respondents were 341
*Percent of respondents reporting who provides them with the services indicated

Table 15: Who offered the best service according to the respondents

% of respondent	Govt. Vet	Private vet	AHA	CAHW*	Agro-Vet	NGO
Mbeere	4.8	34.2	39.1			2.4
Chuka	0.0	42.4	23.5			
Samburu	28.8	0.0	42.8			
Narok	3.2	9.6	67.7	22.5	10.1	
Nyandarua	58.3	25.4	18.3			
Thika	48.3	55.5	28.2			10.3
Machakos	45.3	38.1	19.1			10.1
Average	26.9	29.3	34.1			

*Mainly in Narok
Remarks: Total respondents were 285

Organization of African Unity (OAU)
Inter African Bureau for Animal Resources (IBAR)
Pan African programme for the Control of Epizootic (PACE)

REPORT FOR THE SECOND HALF OF 2002

JUNE-OCTOBER 2002

ECONOMICS UNIT

SEPTEMBER 2002

Six month report of PACE Economics Unit – Second half of 2002

SUMMARY

During the period from June to October 2002, the economics unit contributed to the four main thrusts of the PACE Programme as follows:

Regarding the thrust on enhancing national capacities, additional three national training workshops on the transfer of the rinderpest economic impact assessment model were conducted in Gambia, Kenya and Uganda where 52 staff were trained on these methodologies and the rinderpest model transferred to the countries concerned. Other training workshops have been planned for Tanzania, Guinea-Conakry and Mali before the end of the review period. National annual workplans and cost estimates (AWPCEs) were analysed and suggestions made for their improvement. Results on the costs of national epidemio-surveillance systems are being incorporated into the economic impact assessment training program.

On improved service delivery, detailed data on the structure, function and cost of the epidemio-surveillance systems were collected in Chad, Ethiopia, Gambia, Ghana, Kenya, Nigeria, Tanzania and Uganda. The annual funding levels required to sustain epidemio-surveillance systems were also established in these countries. Arguments to support increased investments in surveillance are now being developed through benefit-cost analysis. Data on national governments contributions to livestock and animal health were collected in CAR, Chad and Ghana in addition to data on six countries (Cameroon, Ethiopia, Kenya, Mali, Tanzania and Uganda) collected earlier. Analysis of this data is on-going.

On the fight against rinderpest, a report on the ex-ante economic impact assessment of rinderpest surveillance and eradication in Ethiopia was produced. A similar analysis has been initiated for Senegal that will utilize the cost data currently being collected in the same country.

Concerning the control of other epizootics, epidemiological data on CBPP were collected through background studies commissioned in Burkina Faso, CAR, Chad, Cote d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Mali, Mauritania, Niger, Rwanda, Senegal, Tanzania and Uganda. The data is being used towards an ex-ante analysis of CBPP.

The unit also participated actively in some international and local meetings where presentations were made on issues related to economics of animal health.

ACTIVITIES	RESULTS	OBJECTIVELY VERIFIABLE INDICATORS	CONSTRAINTS	RECOMMENDATIONS
Enhance national capacities in economic impact assessment	1.Training workshops on the transfer of the rinderpest economic impact assessment model conducted in Gambia, Kenya and Uganda. 2.Detailed analysis of economic activities in national AWPCE's carried out. 3. Costs of national epidemio-surveillance systems being incorporated into the training program	1.Number of national staff trained and workshops held on economic assessment methods. 2.Report of the analysis produced. 3. Revised training manual	1.Logistical problems prevented training from taking place in Rwanda and Guinea and Mali as previously planned. 2.Delayed funding in most countries 3. Economic activities not included or adequately explained in most national AWCPE's.	1.To ensure continuity in training to enhance national capacities, the knowledge transfer position should be extended to the end of the PACE program. 2.Training should continue as planned as most countries have now received funding. 2.Economics activities to be fully included and appropriately budgeted in the national AWPCE's.
Improved service delivery	1.Detailed data on the structure, function and cost of the epidemio-surveillance systems collected in Chad, Ethiopia, Gambia, Ghana, Kenya, Nigeria, Tanzania and Uganda. 2. Annual funding levels required to sustain epidemio-surveillance systems established in the above countries. 3. Arguments to support	1. Document on the analyses produced. 2. Number of countries availing cost and national government contribution data	1.Differences in national governments budgeting systems make it difficult to: 1.Disaggregate the contribution of livestock and animal health budgets. 2.Develop a	1.Activity to proceed as planned.

	increased investments in surveillance being developed through benefit-cost analysis. 4. Data on national governments contributions to livestock and animal health collected in CAR, Chad and Ghana in addition to data on six countries collected earlier. Analysis of this data is on-going.	3. Mission reports to the countries. 4. Articles informing livestock policy published in PACE Newsletter.	standard format applicable to all countries.	
Fight against Rinderpest	Economic impact assessment of rinderpest surveillance and eradication in Ethiopia done.	Report produced on the economic impact assessment of rinderpest surveillance and eradication in Ethiopia.		1.Activity to be extended to another country.
Control of other epizootics	1.Epidemiological data on CBPP collected in Burkina Faso, CAR, Chad, Cote d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Mali, Mauritania, Niger, Rwanda, Senegal, Tanzania and Uganda. 2. Literature review and data synthesis on the economics of CBPP is on-going towards *ex-ante* analysis of the costs and benefits of CBPP	1.Country background reports on CBPP produced. 2.Methodology for ex-ante analysis of CBPP.	1.. Limited information available on the economics of CBPP. 2. Epidemiological modelling of CBPP pending	1. Liase with the epidemiology unit to model epidemiology component of CBPP 2. Continue with literature review and data collection.

Participation in meetings and Conferences

During the review period, the unit participated in a number of international and local meetings as follows:

- First joint PACE co-ordination meeting for Eastern, Central and West Africa in Cotonou, Benin on June 22-30, 2002. Presentations were done on analysis of economics activities in the PACE member countries and costing of epidemio-surveillance systems.

Draft concept note

Regional workshop on financing and sustaining national epidemiological surveillance systems in PACE member countries in Eastern Africa

Dar es Salaam, Tanzania
February, 2003

Economics Unit

Regional workshop on financing and sustaining national epidemiological surveillance systems in PACE member countries in Eastern Africa

Introduction

The objective of the Pan African Control of Epizootics (PACE) program is to improve animal health services so as to increase livestock production and ensure food security in Africa. PACE is designed to build on the achievements of the Pan African Rinderpest Campaign (PARC) to eradicate rinderpest from Africa and to establish a sustainable system of epidemiological surveillance networks for effective control of epizootic animal diseases. An effective epidemiological surveillance system is a requirement of the OIE Pathway for the verification of rinderpest eradication. Countries that cannot demonstrate that an effective surveillance system is in place that would be capable of detecting rinderpest if it were present will not be awarded rinderpest infection-free status for the purposes of international trade. Epidemio-surveillance systems are thus a requirement for countries to reap the full economic benefits of rinderpest eradication regardless of the intervention strategy used to eradicate the disease.

In the past, PACE member countries have been assisted by donor organizations such as the European Union (EU) to fund animal disease control programs. The problem is that there is too much dependence on donor funds and once these funds cease, disease control becomes non-sustainable. For example, the Joint Project (JP-15) was financed jointly by international organizations and national governments to eradicate rinderpest from Africa. The project successfully reduced the incidence of rinderpest in Africa and strengthened national veterinary services to respond to other diseases. When external financing ended in 1976, national governments found it difficult to provide services on a sustainable basis. Routine vaccination and disease surveillance declined and rinderpest reappeared in several parts of the continent.

To eradicate rinderpest from Africa, the PARC programme was initiated in 1986, again, with joint funding from national governments and donor organizations. By 1999 PARC had successfully controlled rinderpest from most parts of Africa. To avoid the post-JP-15 mistakes (inadequate funding and the resurgence of rinderpest), the PACE programme was initiated. PACE covers 32 sub-Saharan African countries and is funded principally by the European Union (EU) with the contribution of each of the 32 national governments. PACE has a five-year life span that will end in 2004. Each country is expected to gradually increase its financial contribution to the programme so that after 2004 it will take over full funding of all the epidemiological surveillance activities. This pre-condition is stipulated in the PACE financial agreement signed between AU/IBAR and the EU.

Most governments unfortunately are facing major economic and financial problems and are finding it difficult to make financial contributions to PACE. National budgets for livestock and animal health services are not only small, but are declining in absolute and relative terms every year. In a recent review of livestock and animal health budgets in six SSA countries (Cameroon, Ethiopia, Kenya, Mali, Tanzania and Uganda) the recurrent expenditure did not exceed 1% of the total national recurrent budget. The difficult task of funding national surveillance systems on a sustainable basis is even more fundamental. There is a need therefore to sensitise key decision-makers on the importance of increasing financial contributions in order to sustain their national epidemio-surveillance systems.

Workshop objectives

The purpose of the workshop is to sensitise key decision-makers in PACE member countries on the importance of sustainable epidemio-surveillance systems in their countries. The specific objectives are to:

(i) Present economic justifications for increased financial investments in national surveillance systems;
(ii) Develop a financial and budgeting plan for national governments to sustain their surveillance systems; and
(iii) Make recommendation to decision-makers on how to financially sustain national surveillance systems.

Methodology

A participatory methodology involving project management cycle will be used, with the help of a facilitator.

Results

The following results are anticipated at the end of the workshop:

(i) Participants are sensitised on the economic importance of having national surveillance systems and why they should provide adequate funding of the systems; and
(ii) A financial and budgeting plan is prepared on how governments should release funds for surveillance activities in each country.

Participants

Participants will be drawn from the following countries: Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania and Uganda. The participants will consist of people who are involved in financial decision-making in their respective countries such as EDF national authorising officers, directors of budgets and directors of veterinary services.

Venue and Date

The workshop is tentatively planned for Dar es Salaam, Tanzania to take place in February 2003.