

# THE ROLE OF ANIMAL DISEASE CONTROL IN POVERTY REDUCTION, FOOD SAFETY, MARKET ACCESS AND FOOD SECURITY IN AFRICA

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**Summary:** *It is estimated that nearly 200 million people in Sub-Saharan Africa (not counting consumers) rely on livestock.*

*The poor are highly exposed to a wide range of animal diseases (a hundred or so in Africa), due to strong pressure from diseases (associated with climatic conditions, ecosystems, animal movements and livestock management practices) and to a poor capacity to control them (on account of political, organisational, financial or technological factors).*

*These animal diseases can, in turn, further expose the poor to environmental risks (drought), economic risks (prices), social risks (marginalisation) and also political risks (insecurity). The main diseases are ranked according to their relative impact on income, nutrition, vulnerability, access to markets, both as a whole and for each of the principal production systems and animal species.*

*There are several different types of impact: loss of livestock productivity (production losses, treatment costs, market disruption); loss of revenue from activities making use of animal resources (agriculture; energy; transport); human welfare (diseases or even deaths; food safety and quality); prevention costs (production costs; public expenditure) or sub-optimal use of production potential (animal species, genetics, husbandry practices).*

*As a whole, animal diseases jeopardise the livestock assets of producers and poor countries, limit market-access opportunities for animals and animal products and restrict possibilities for intensifying livestock farming.*

*Animal diseases also represent a serious public health and sustainable growth problem, as well as severely constraining the social and economic development of affected countries.*

*Transboundary diseases, diseases transmissible to humans and food-borne diseases (priority diseases) currently pose a particularly grave threat to poor populations, national economies and the economies of neighbouring or importing countries (viz. foot and mouth disease in the United Kingdom). However, the national and regional operational capacities needed to assure the core functions of an efficient control system are largely inadequate (in terms of personnel, equipment, infrastructure and financing).*

*The development partners, under the leadership of the OIE, are requested to invest in building the technical, scientific and operational capacities of the global control system. This system has to be seen as an international public good and placed under the responsibility of the Official Veterinary Services.*

*Recommendations have been made for sustained involvement, both globally (incentive framework, institutions and investment) and collectively (national, regional and international), with a strong focus on poverty reduction (Poverty Reduction Strategy Paper; access to services; strategic research).*

*It is proposed that a significant health component should be developed as part of the ALive programme.*

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<sup>1</sup> The views expressed in this report are those of the authors and in no way represent the official position of the World Bank.

## 1. INTRODUCTION

Given the importance of livestock to poor populations and the threat posed to their livelihoods by animal diseases that have an impact on livestock productivity and human health, any programme aimed at controlling or eradicating such diseases with serious consequences for the poorest sections of the human population will have a major direct impact on poverty reduction.

A survey envisaging this approach to poverty was conducted among all the African countries based on an OIE questionnaire<sup>2</sup> distributed in 2002.

The overall objective of the questionnaire was to assess the role of animal disease control in poverty reduction, food safety, market access and food security in Africa. To this end, the 31 questions were divided into four themes:

- (a) *Poverty profile*: the extent of knowledge about the link between poverty and the different productive livestock species, production systems, products and services.
- (b) *Animal diseases*: the impact of animal diseases and their influence on livestock farmers, workers and consumers.
- (c) *Capacity*: the current capacity to mitigate the negative effects of animal diseases, as well as to improve their control.
- (d) *Opportunities*: the medium- to long-term prospects for building this capacity.

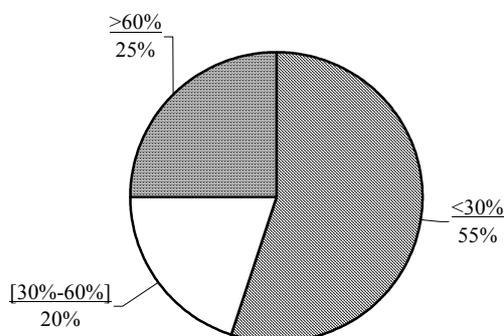
Twenty-two countries replied to the questionnaire (Algeria, Angola, Benin, Botswana, Burkina Faso, Democratic Republic of Congo, Egypt, Eritrea, Guinea, Kenya, Malawi, Mali, Mauritius, Morocco, Madagascar, Namibia, Somalia, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe).

## 2. RESULTS

### A. Poverty profile

The poor tend to be concentrated mainly in **rural areas** where they represent more than 50% of the Sub-Saharan African population (as much as 95% in the Democratic Republic of Congo and around 80% in Burkina Faso, Zambia and Zimbabwe), and less than 20% in the North African countries. This confirms poverty as a “**rural phenomenon**”.

Graph 1 below shows that 25% of the countries estimate that more than 60% of their population derive their income from livestock or livestock products. Apart from foodstuffs, mention was also made of the important secondary role of livestock, namely for fertilisers (manure production) and animal traction.



<sup>2</sup> The following people participated in developing this questionnaire: Cees de Haan, Noël Chabeuf, Tjaart Schillhorn Van Veen, Michel Siméon and Laurent Msellati.

Graph 1

**Percentage of the total population living directly or indirectly from livestock**

Of all the proposed species (cattle, small ruminants, pigs, poultry, camels, donkeys, horses and others), 70% of the countries mentioned **poultry** as the main source of income for the poorest households; next in decreasing order of importance come small ruminants and cattle; after that, the relative importance of the other species is linked with cultural factors (the countries of the Sahel accord great importance to camels and donkeys) and to religious factors (most non-Muslim countries state pigs as being one of the three most important species). Cunicidae and wild game were also mentioned.

In terms of livestock production systems, 50% of the countries practise **agropastoralism**; next in decreasing order of frequency come pastoral, peri-urban and, lastly, urban farming systems.

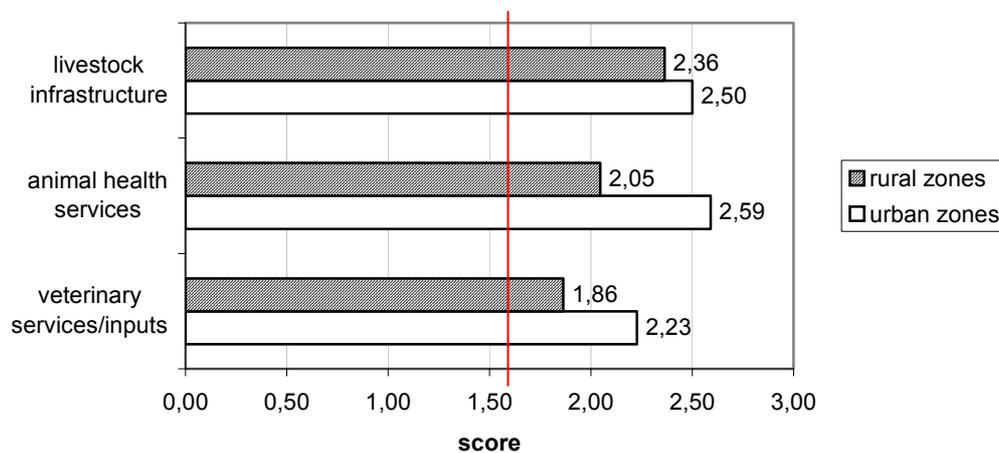
In terms of the nutritional status of their populations, 64% of the countries have statistics available (national surveys by the health ministries), which show that both rural and urban populations generally suffer from **malnutrition** and **undernutrition**, due to protein and energy deficiencies. However, rural populations appear to be the hardest hit. Children are the population group that suffers the most: more than 25% of children are either underdeveloped, suffering weight loss or emaciated.

Animal products have great nutritional importance in more than 90% of cases (mainly for protein), but their inaccessibility (high price) was frequently stressed. However, urban and rural populations do manage to partially offset the local shortage of livestock products by eating imported products (offal and fifth quarter, etc.) or hunting/gathering/fishing products (wild game, caterpillars, etc.).

The poorest populations were reported to suffer from a serious shortage of **milk** and **dairy products** (28%), then red meat (24%), poultry meat (22%) and fish and eggs (13% each).

In the main, the livestock services offered to poor populations (accessibility and importance of inputs, services and infrastructure) are **adequate** in both urban and rural areas (Graph 2, score  $\geq 1.5$ ). However, rural areas are less well served despite the fact that most livestock-related activities take place in rural areas.

(Score: 0 = unsatisfactory; 1 = mediocre; 2 = fair; 3 = satisfactory)



Graph 2

Poor populations appear to be particularly affected by a shortage of the following services:

- (i) *Veterinary inputs*: vaccines, then secondly medicinal products (specific mention was made of antibiotics and antiparasitics). Moreover, they are deemed too expensive, diminishing their accessibility.
- (ii) *Animal health services*: more than 50% consider training and information for livestock players to be essential.

(iii) *Infrastructure*: the importance of free vaccination campaigns is particularly emphasised, and it is considered necessary to build abattoirs and veterinary clinics.

## Summary: Poverty profile

In almost half of the African countries, 30% of the population live basically from livestock.

Poultry and ruminants are the two most important species for the poor. As a whole, the pastoral and agropastoral systems are the most important livestock production systems for the poor. However, in some countries, periburban and urban production systems are important.

Scarcities and nutritional deficiencies can be seen in most of the countries and children represent a population group that is particularly at risk. In terms of nutrition and financing, animal products are vital for poor populations but difficult for them to access or afford. Milk and dairy products are the most important animal products for the poor, with their importance measured by the effects of a shortage of such products. Red meats come in second position, then poultry meat and eggs. Fish and wild game are also very important in the diet of poor people.

Although veterinary products and services (vaccines, medicinal products and veterinary health care) are essential (for instance, the lack of avian vaccines appears to heavily affect poor farmers), once again, they are not systematically available to the poor, especially in rural areas. The key activities that would help poor populations are to make available vaccines and veterinary medicinal products, to provide training and advice, to build abattoirs and veterinary clinics and to conduct free vaccination campaigns.

### B. Animal diseases

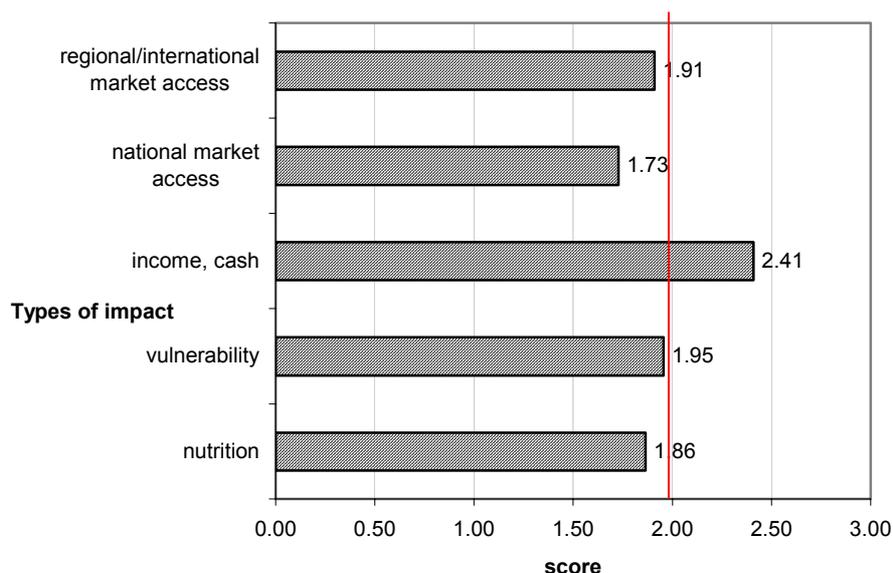
Thirty-six percent of the countries measured and ranked the impact of animal diseases on poor populations. However, some state that they did not do so for all the diseases.

Veterinary treatments are chiefly used on poultry in urban areas and on cattle in rural areas. The types of product most frequently used are vaccines for poultry and cattle, internal antiparasitics for cattle in rural areas and for small ruminants in urban areas, and antibiotics for poultry in urban areas.

Pastoral and agropastoral systems make use of veterinary products essentially to treat cattle (vaccines and antiparasitics) and the peri-urban and urban systems make use of them for poultry (vaccines and antibiotics) and pigs (external antiparasitics).

Animal diseases have significant repercussions on poor populations at every level (Graph 3, score  $\geq 1.5$ ), but they affect their income the most.

(Score: 0 = no impact; 3 = major impact)



Graph 3

**Evaluation of the type of animal diseases on poor populations**

The impact of 33 pathogens/diseases on poor populations was examined in the light of the following factors:

(i) *Production systems*

The pastoral system is affected mainly by **ectoparasites**, gastrointestinal helminths, foot and mouth disease and then trypanosmosis.

The agropastoral system is affected mainly by the same diseases, added to which four other diseases are also deemed important: East Coast fever, Newcastle disease, lumpy skin disease and African swine fever.

Periurban and urban production systems are affected mainly by five diseases: ectoparasites, foot and mouth disease, gastrointestinal helminths, tuberculosis and brucellosis.

Other important diseases that some countries added to the proposed list are rabies, avian salmonellosis, enterotoxaemia, botulism and Gumboro disease (important chiefly for intensive systems).

(ii) *Animal species*

Internal parasitosis (gastrointestinal helminths) and external parasitosis (ectoparasitosis) are the diseases most commonly mentioned for all species.

For cattle, the data underlined the importance of foot and mouth disease, anthrax, trypanosomosis, blackleg and contagious bovine pleuropneumonia.

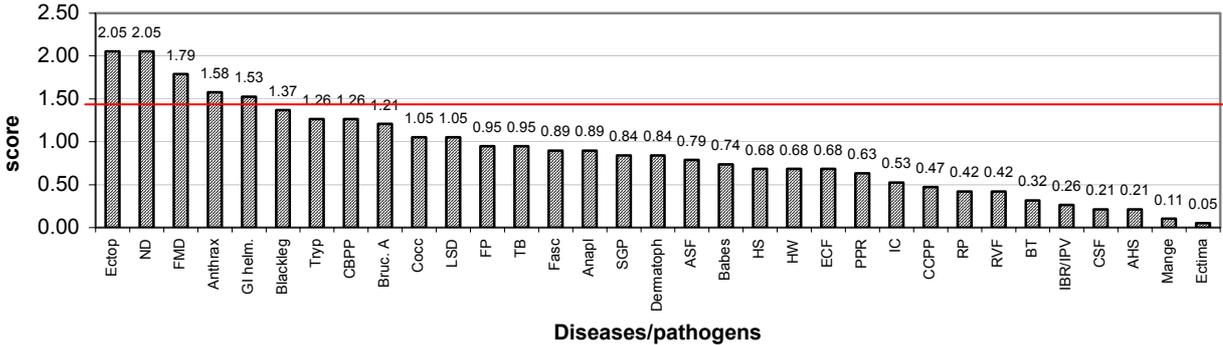
Small ruminants are affected mainly by peste des petits ruminants, bluetongue, contagious caprine pleuropneumonia and East Coast fever.

Pigs are affected mainly by African swine fever.

For poultry, the most feared disease is Newcastle disease, but several countries also mentioned coccidiosis.

Graph 4 below shows the overall impact of animal diseases on poverty.

(Score: 0 = no impact; 3 = major impact)



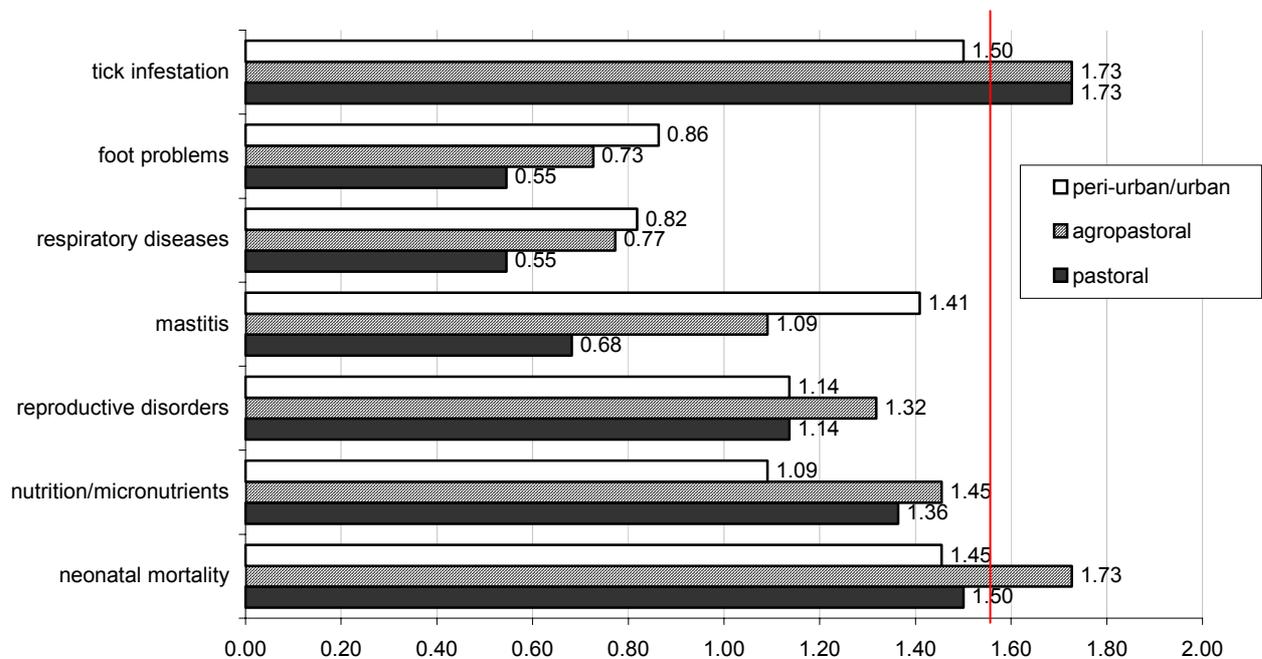
**Graph 4**  
**Overall impact of animal diseases on poverty**

Diseases deemed to have a significant impact on poverty (score  $\geq 1.5$ ) are, in decreasing order of importance: ectoparasitosis, Newcastle disease, foot and mouth disease, anthrax and gastrointestinal helminths.

The data presented above were derived from epidemiological data (55% of the sources), personal observations or experiences (33%) and literature (12%).

Tick infestation has a significant impact on poverty (Graph 5, score  $\geq 1.5$ ) for all livestock production systems. Neonatal mortality has a significant impact on agropastoral and pastoral systems.

(Score 0 = no impact; score 3 = very significant impact)

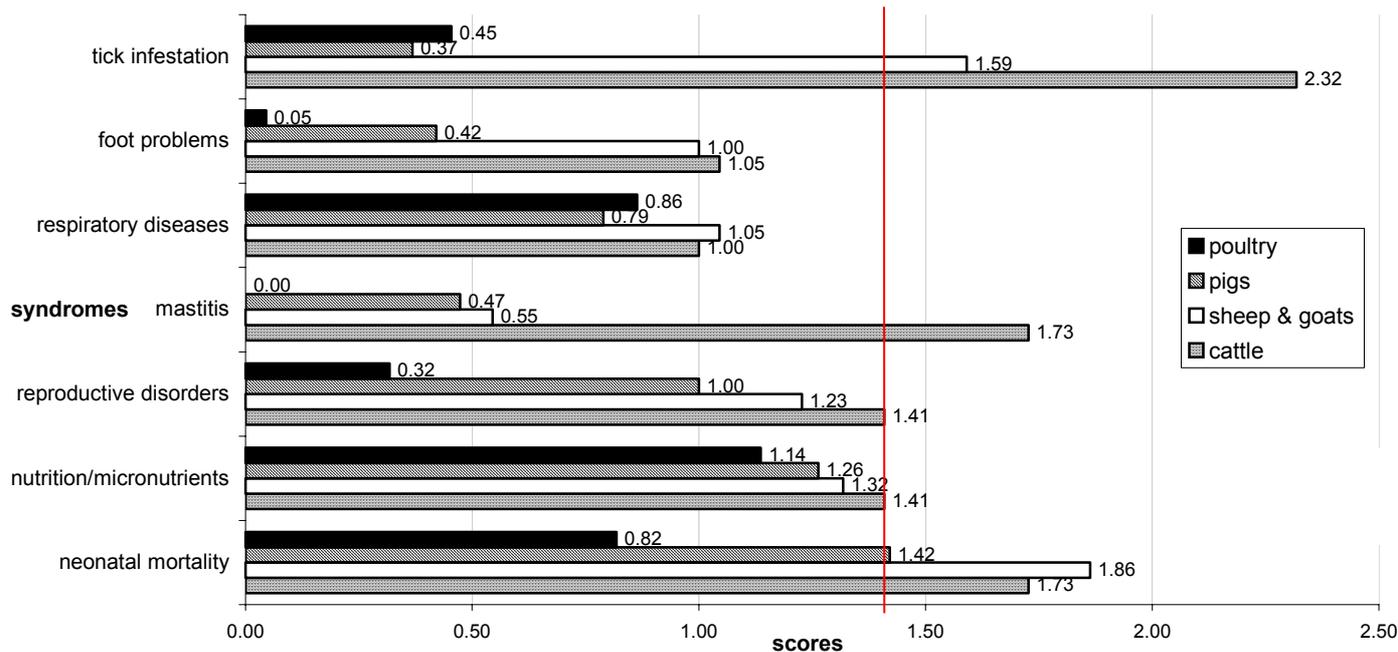


Graph 5  
**Impact of syndromes on poverty for each livestock production system**

In terms of the impact of the different syndromes on poverty in relation to the various animal species, the species most affected by every disease mentioned is **cattle**, then small ruminants, pigs and poultry.

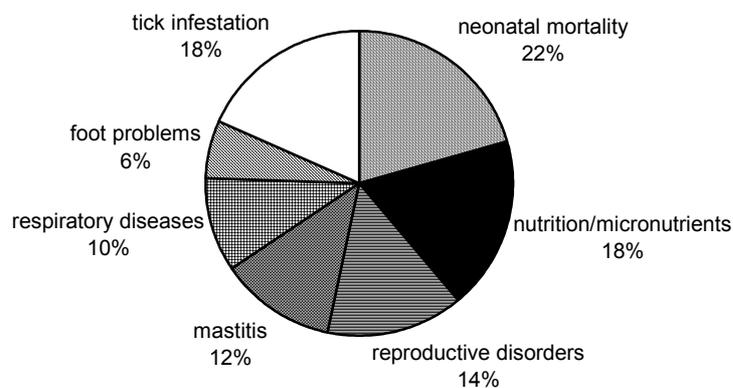
Cattle are heavily affected (Graph 6, score  $\geq 1,5$ ) by **tick infestations**, **neonatal mortality** and **mastitis**.

Sheep and goats are affected mainly by neonatal mortality and tick infestation, pigs by neonatal mortality and poultry by nutritional syndromes.



Graph 6  
Impact of syndromes on poverty by species type

In terms of the overall impact of the syndromes on poverty, **neonatal mortality** has the greatest impact on poor populations for all production systems and species (Graph 7).



Graph 7  
Overall impact of syndromes on poverty

The diseases with the most important impact in terms of **production losses**, in decreasing order of importance, are: **Newcastle disease** (considered to be of very significant impact); contagious bovine pleuropneumonia, African swine fever, East Coast fever, gastrointestinal helminths, blackleg and trypanosomosis (considered to be of major impact); other diseases (considered to be of negligible impact).

The diseases with the most important impact in terms of **disease control costs**, in decreasing order of importance, are: **contagious bovine pleuropneumonia** (considered to be of very significant impact); foot and

mouth disease, African swine fever, Newcastle disease, East Coast fever and trypanosomosis (considered to be of major impact); other diseases (considered to be of negligible impact).

The diseases with the most important impact in terms of **markets and trade effects**, in decreasing order of importance, are: **Newcastle disease** (considered to be of very significant impact); African swine fever, contagious bovine pleuropneumonia and foot and mouth disease (considered to be of major impact); other diseases (considered to be of negligible impact).

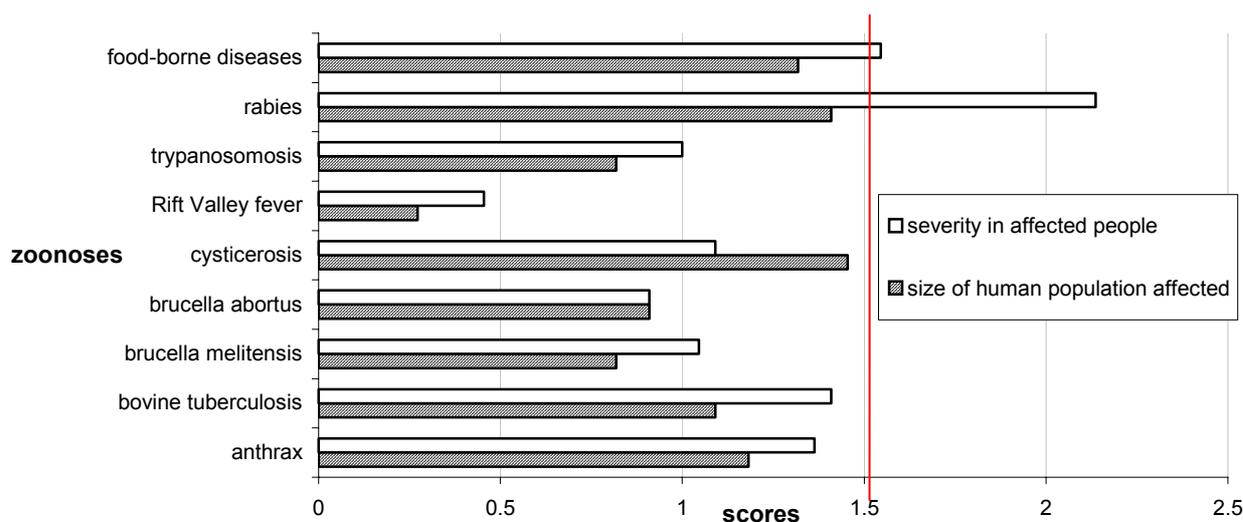
The diseases with the most important impact in terms of **public sector expenditure for disease control**, in decreasing order of importance, are: **foot and mouth disease** (considered to be of very significant impact); contagious bovine pleuropneumonia, Newcastle disease, swine fever and trypanosomosis (considered to be of major impact); other diseases (considered to be of negligible impact).

Three diseases have an impact on all four categories: Newcastle disease, contagious bovine pleuropneumonia and African swine fever.

**Rabies and food-borne diseases**, together with **cysticercose** and **anthrax** are the most widespread zoonoses among the human population (Graph 8).

**Rabies and food-borne diseases** are the most serious zoonoses (worst mortality).

(Score 0 = not widespread/minor; 3 = very widespread; very serious)



**Graph 8**  
**Impact of zoonoses on poverty in terms of the percentage of the human population affected and the severity of zoonoses**

### Summary: Impact of animal diseases

Only one third of the countries quantified and ranked the impact of animal diseases on poor populations.

Poultry and cattle are the species for which the most veterinary products are employed, of which the most common products are vaccines (poultry and cattle), internal antiparasitics (cattle and small ruminants) and antibiotics (poultry). In pastoral and agropastoral systems, treatments are used mainly for cattle (vaccines and antiparasitics), whereas in periburban and urban systems, veterinary products are used mainly to treat poultry (antibiotics and vaccines) and pigs (external antiparasitics).

In terms of the overall impact of animal diseases on poverty, the heaviest impact is on the income of poor populations, then human nutrition and access to local and international markets. The most important diseases in this respect are foot and mouth disease in cattle, peste des petits ruminants in sheep and goats, swine fever in pigs and Newcastle disease in poultry. However, across all species, the animal diseases with a major overall impact on poverty are parasitosis (gastrointestinal helminths and ectoparasitosis), epizootics (foot and mouth disease and Newcastle disease) and one zoonosis (anthrax).

Neonatal mortality and tick infestation are the two main syndromes with a major impact on poverty. Epizootics (Newcastle disease, contagious bovine pleuropneumonia, African swine fever and foot and mouth disease) are shown to have a heavy impact in terms of production losses, market and trade effects and public expenditure on disease control. Finally, poor populations are affected mainly by rabies and food-borne infections, which are the two most serious and widespread zoonoses in Africa.

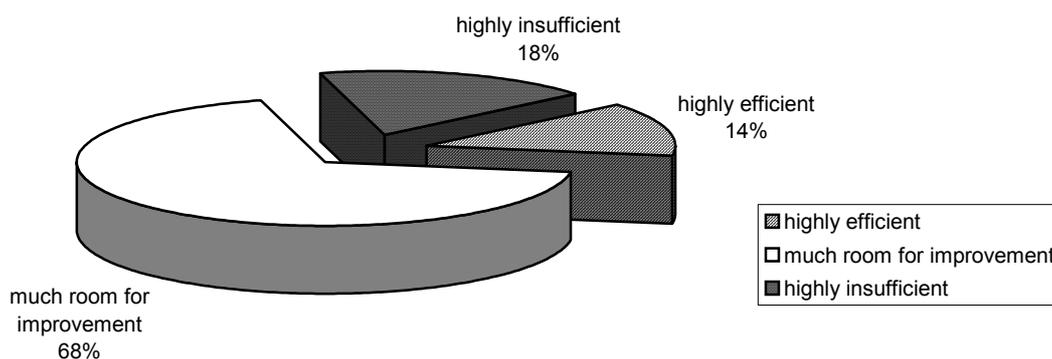
### C. Capacity

Although the descriptions of the models of animal health service delivery by the 16 countries answering the questionnaire were very disparate, the main points raised were:

- **Animal disease surveillance** is carried out by **75% of the countries**, even though some countries admitted that it is weak. Two countries mentioned that they have a national epidemiological surveillance network.
- **Animal disease reporting to the OIE** is carried out by **62% of the countries**.
- **Vaccination** is carried out by **62% of the countries**, by official veterinarians and by private veterinarians with an animal health accreditation mandate.
- **Animal health care** is carried out mainly by **private veterinarians**, under the responsibility of animal owners.

With regard to the other animal health services, three countries mentioned that they have import controls on live animals, including quarantine systems. One country mentioned that it has an emergency plan.

The countries' self-assessment of their models of animal health service delivery is illustrated below (Graph 9). Three countries (Botswana, Egypt and Mauritius) consider their model of animal health service delivery to be highly efficient and four (Angola, Madagascar, Somalia and Tanzania) as highly insufficient.



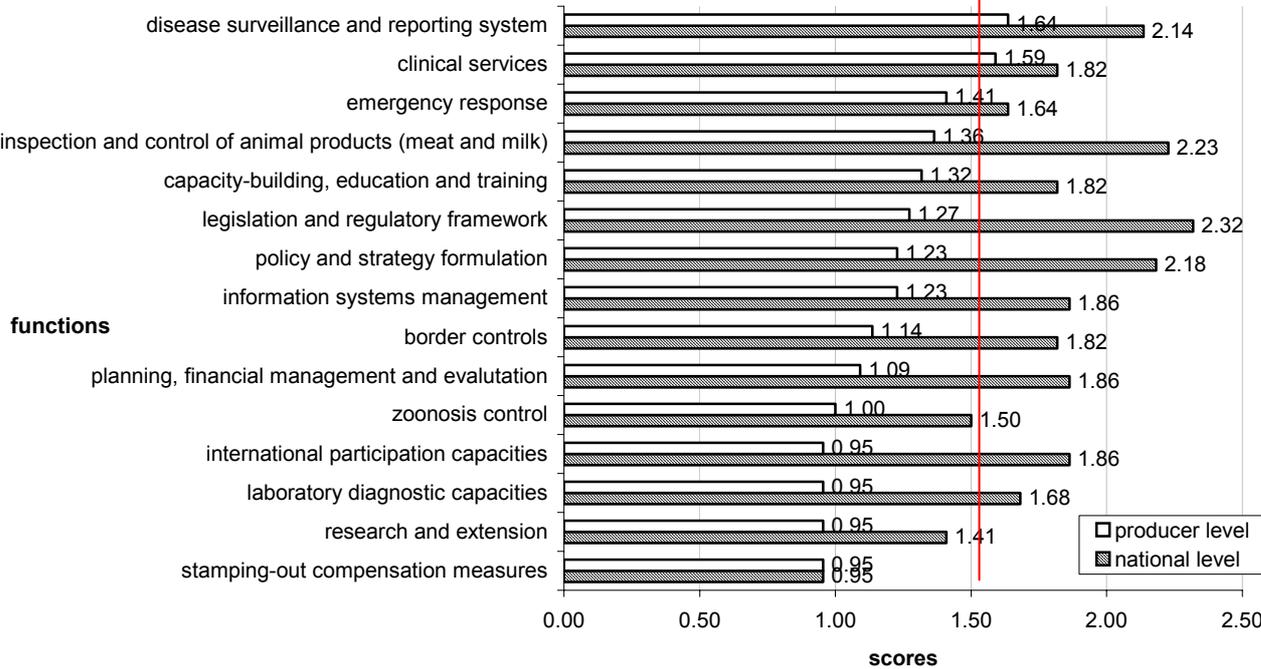
Graph 9

The countries state that they have sufficient capacities (Graph 10, score  $\geq 1,5$ ) for 13 of the 15 functions mentioned as likely to improve a country's animal health status. The only functions that are difficult to improve overall under the present circumstances are research and extension and stamping-out compensation measures.

By contrast, the countries' operational capacity is insufficient to improve the animal health status at producer level. They only have sufficient capacities (score  $\geq 1,5$ ) for disease surveillance and reporting, as well as for delivering clinical services.

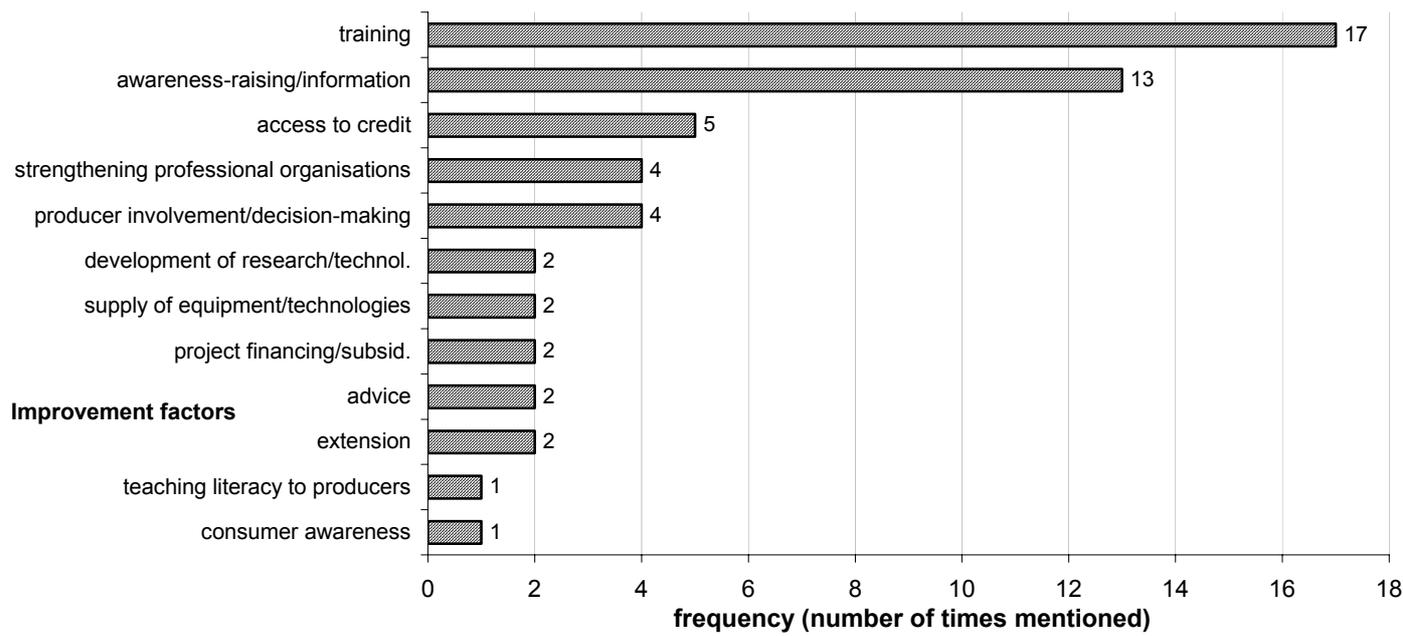
For all the functions described, the operational capacities of the animal health services have a much stronger impact at national level than they do directly on producers.

(Score: 0 = no capacity; 3 = optimum capacity)



**Graph 10**  
**General operational capacities of animal health services**

The most frequently mentioned factors for improving farmers’ access to technologies, knowledge and decision support are farmers’ training, awareness-raising/information and access to credit (Graph 11).



Graph 11

**Measures to give poor producers better access to available technologies, knowledge and decision support**

The partnership between the public and private sectors and producer organisations mainly takes the form of defining policies and strategies for animal disease control, for carrying out the animal health accreditation mandate, for the epidemiological surveillance of animal diseases, for support, information, training and advice to farmers, for controlling animal movements and for veterinary medicinal products.

This partnership is organised mainly through producer and farmer associations, regional chambers of agriculture and private veterinary associations.

However, five countries (Angola, Eritrea, Mauritius, Namibia and the Democratic Republic of Congo) out of 22 (i.e. 23%) state that there is no partnership at all between the public and private sectors and producer organisations.

Cooperation between state and private veterinarians mainly takes the form of private veterinarians carrying out vaccination missions under an animal health accreditation mandate.

However, the countries also mentioned cooperation between state and private veterinarians, with private veterinarians carrying out animal disease surveillance and reporting diseases to state veterinarians, as well as carrying out training and information tasks. We are seeing less and less overlapping of activities between state and private veterinarians, especially for animal health care delivery, since state veterinarians have recentred their activities on more supervisory tasks like formulating regulations, export certification and health inspection of animal products.

Cooperation between veterinarians and paraveterinarians mainly takes the form of veterinarians providing support and training to paraveterinarians.

Two countries (Angola and Mauritius) said they had absolutely no cooperation at any level.

Animal health services have been **privatised** in all countries except Angola and Mauritius. For most of the other countries, privatisation is in progress.

With regard to the impact and importance of privatisation on poor populations, replies were mixed. The principal negative aspect mentioned was that, since the poor are unable to pay for care, private veterinarians are not interested in them and prefer to set up their practices in areas where they will earn the most money.

However, even though the countries do not have full coverage, in general privatisation does seem to have led to a better distribution of animal health services and veterinary medicinal products (locally-based health care) in areas not formerly reached by public services (private veterinarians can at least give advice to poor farmers).

There are a number of constraints on privatisation, such as:

- o Lack of any real political will in some countries to introduce privatisation.
- o Lack of legislation (or woolly legislation) regulating the private veterinary profession; lack of compliance with regulations where they do exist.
- o Lack of financing for private veterinarians to set themselves up in practice; insufficient capacities.
- o Farmers and producers in the poorest areas have little purchasing power.
- o Use of unskilled personnel.
- o Too few private veterinarians, with some areas totally devoid of them.
- o A shortage of medicinal products and structures for marketing them.
- o Widespread illiteracy in some areas.

The risks of privatisation include:

- o Higher production costs, which the poorest people cannot afford; this excludes the poor from animal health services.

- o Farmers are reluctant to call in private veterinarians (whose services are too expensive), with the principal result being renewed outbreaks of certain diseases and reduced vaccination coverage and epidemiological surveillance.
- o Inappropriate prescribing of veterinary medicinal products, fresh upsurge of drug fraud, uneven health care quality between one area and another owing to a lack of proper regulation, a professional body and supervision by the official veterinary services.
- o Unfair competition.
- o Less coordination between public and private services.
- o Less statistical data.
- o Obsolescence of state services in certain areas, due to the loss of strictly animal health activities.

Twenty-seven percent of the countries have not yet embarked on the path towards the **decentralisation** of animal health services.

Decentralisation is generally seen as having a positive impact on poor populations since it offers better government aid coverage (locally-based advice and health care), more appropriate responses to local needs and lower transaction costs. Decentralisation also allows local populations to be involved in decision-making. Furthermore, some said local management was more effective and appropriate.

The constraints on decentralisation are a lack of financing (the funds allocated locally for the Veterinary Services are diluted with the funds earmarked for the other decentralised services), a lack of local capacities (equipment, infrastructure) and a lack of qualified and motivated personnel.

The main risk of decentralisation is a dilution of effort and a weaker chain of command, with the decentralised or 'deconcentrated' [where decision-making powers are transferred to representatives of the central authorities operating at local level] Veterinary Services responding more to local needs than to central needs.

Also, with decentralisation, information feedback to the central services, such as animal disease reporting, is not optimal. Finally, the fragmentation of the Veterinary Services within the countries, with no harmonisation between one district and another, undermines the quality of services, which ultimately harms farmers.

Two prerequisites for the smooth operation of the decentralisation process is for the central veterinary services to maintain strong supervision and for appropriate resources to be distributed among the decentralised structures.

The **integration** of the Veterinary Services within general agricultural support systems is perceived differently by the various countries. A factor seen as positive is that it allows resources to be pooled and services to be strengthened, whilst also reducing duplication of activities and public expenditure.

However, some countries stress that extension by training and visits, or by any other equivalent system, is geared towards agricultural aspects and little, if at all, towards livestock aspects, making the skills acquired by farmers too general and not geared to the specific requirements of each sector.

The constraints on the integration of the Veterinary Services within general agricultural support systems are mainly people-related, with conflicts of interest between the various key actors when it comes to defining individual roles and responsibilities, with a resulting overlapping of responsibilities in some instances. Furthermore, veterinary personnel has to be increasingly multidisciplinary and training must be broader.

There are many risks to such integration and these corroborate the above factors:

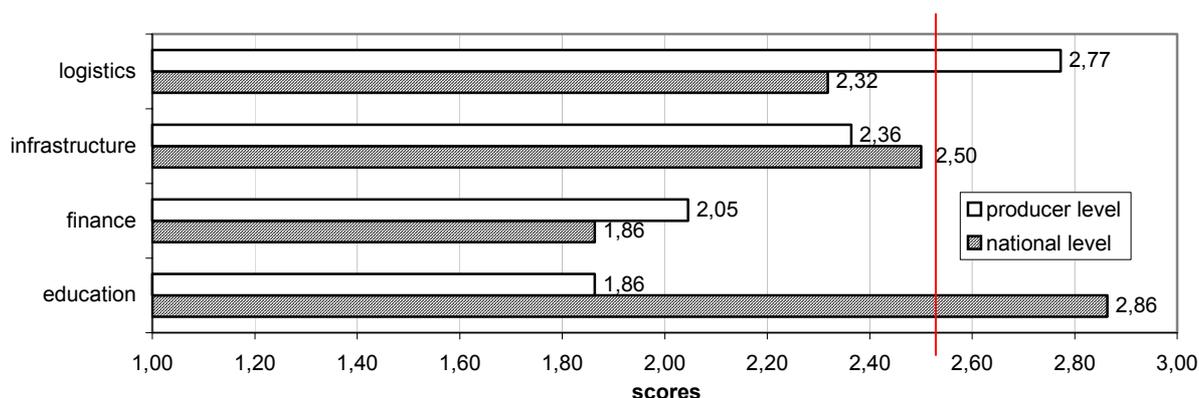
- o Prioritising activities within the general agricultural services can lead to the total disappearance of the livestock sector, which is seen as unprofitable, or at the very least can lead to hampering the livestock sector's development or to insufficient financing being allocated to livestock production. As a result, the private sector can take over these activities at exorbitant cost, with a highly negative impact on the poorest farmers.
- o Assistance to farmers can become less and less specific (the training and visits system is unable to cover all the activities), ultimately resulting in a decline in service quality and in farmers' performance.

- o In livestock-related activities, the chain of command and information feedback can be diluted, leading to less appropriate responses.

Six countries (Eritrea, Guinea, Madagascar, Morocco, Namibia and Tunisia) had not started this integration in 2002.

The two most important constraints on the optimisation of service delivery and the adoption of measures to control known diseases are **education** at national level and **logistics** at producer level (Graph 12).

(Score: 4= major constraint; 3= important constraint; 2= somewhat of a constraint; 1= negligible constraint)



Graph 12

**Constraints on the optimal delivery of services and the adoption of measures to control known diseases**

However, apart from the four proposed constraint categories, some countries also mentioned legal aspects, border controls, personnel aspects and stealing of animals.

With regard to the three most frequently cited diseases (contagious bovine pleuropneumonia, Newcastle disease and gastrointestinal helminths), although appropriate and affordable technologies have been developed, the poor have no access to them.

Products, technologies and animal health services specifically targeted at poor populations are listed in the following table:

Products	Technologies	Services
<ul style="list-style-type: none"> <li>- Vaccines, including thermostable vaccines</li> <li>- Diagnostic kits</li> <li>- Solar refrigerators for vaccine storage in outlying areas</li> <li>- Internal and external antiparasitic treatments</li> </ul>	<ul style="list-style-type: none"> <li>- Livestock vaccination (especially against Newcastle disease, enterotoxaemia, foot and mouth disease and contagious bovine pleuropneumonia)</li> <li>- Biological and physical tsetse-fly control</li> <li>- Disinfestation technique and schedule</li> <li>- Animal registration and identification</li> <li>- Extension/oral administration of parasitics</li> <li>- Tick control</li> <li>- Building animal housing from available materials</li> <li>- Hygienic milk-collection procedures</li> <li>- Awareness-raising about caring for newborn animals</li> <li>- Use of locally-produced animal feed (vegetables, proper storage methods, hay, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Animal health care</li> <li>- Control of pathologies (brucellosis, tuberculosis)</li> <li>- Artificial insemination and synchronised rutting</li> <li>- Village poultry vaccinators</li> <li>- Farmer education</li> <li>- Integrated animal disease control (vaccination, animal health accreditation mandate, quarantine and sanitary cordons)</li> <li>- Markets for live animals</li> <li>- Community involvement</li> <li>- Extension</li> <li>- Control of tick-born diseases</li> <li>- Farmer involvement in disease surveillance (structuring, technique training)</li> <li>- Participatory epidemiological methods</li> <li>- Use of animal health workers chosen by the community</li> </ul>

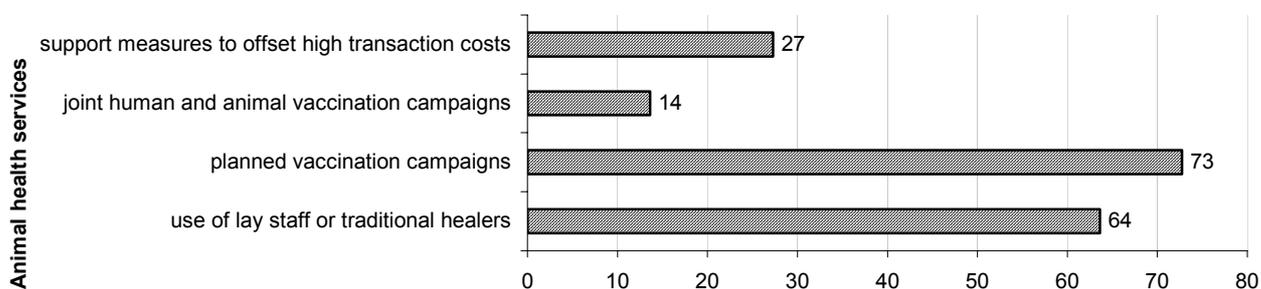
Only 55% of the countries said they had participatory mechanisms for empowering poor farmers, as follows:

Benin	- Village poultry vaccinators (makes the village autonomous in terms of poultry vaccinations and disinfection) - Primary health care by the children of farmers trained for the purpose
Botswana	- Services to Livestock in Communal areas (SLOCA) – farmers are given financial aid for building or buying farms
Egypt	- Small Farmer Projects, heavily involving women, for rearing hens and rabbits or for milk processing
Kenya	- Livestock drug users' associations - Community disease and livestock-movement control
Malawi	- Vaccination control programmes (Newcastle disease, rabies) - Artificial insemination and pregnancy test - Measures to combat livestock-stealing
Mali	- Training village vaccinators in poultry vaccination
Namibia	- Training and equipping community animal health workers
Uganda	- National Agricultural Advisory Services - Livestock cooperatives - Livestock farmer group
Somalia	- Vaccination campaign Laboratory diagnosis - Mobile Clinic for Remote Areas
Tanzania	- Services of Community-based Animal Health Workers (selected by the community)
Tunisia	- Integrated rural development programme: poor populations are given livestock free of charge
Zambia	- Rural Investment Fund (for building watering points for ruminants, dams or tanks; these projects are managed by the communities themselves)
Zimbabwe	- Training of livestock development committees, which are responsible for managing watering points and taking part in vaccination campaigns, etc. - Animal Health Workers to back up the Veterinary Services, paid for by NGOs

Sixty-eight percent of the countries have specific policies or measures to reduce the risk of zoonoses and food-borne infections, especially for poor populations. These programmes are listed according to subject:

- o Rabies control programmes (Algeria, Botswana, Egypt, Kenya, Morocco, Namibia, Uganda, Somalia, Tanzania, Tunisia and Zimbabwe), including free vaccination campaigns for cattle, dogs and cats, culling of the dog population and the provision of human and animal vaccines free of charge.
- o Tuberculosis and brucellosis control programmes (Algeria, Botswana, Egypt, Morocco, Namibia, Somalia, Tanzania, Tunisia and Zimbabwe), notably by means of annual prophylactic treatments for dairy herds.
- o Anthrax vaccination campaigns in infected areas (Botswana, Kenya, Namibia, Zambia and Zimbabwe).
- o Inspection of animal products by the official inspection services, especially meat (Botswana, Kenya, Namibia and Tanzania) and by training butchers in meat diseases (Namibia).
- o Awareness-raising in rural areas about hydatidosis and the role of dogs in transmitting the disease (Tunisia).
- o Control of avian salmonellosis (Zambia, Zimbabwe), notably by means of programmes for assessing avian salmonella in the incubator.
- o General consumer action plan (Benin, Malawi, Mali and Uganda), with the introduction of food and nutrition policies and a food safety agency (Mali).

Some countries are even developing special systems of animal health service delivery for poor operators, such as planned vaccination campaigns (73% of the countries) or the use of lay staff or traditional healers (64%) (Graph 13).



**Graph 13**  
**Percentage of services implemented in the countries**

### Summary: Disease-control capacities

Around 70% of the countries state that their animal health service delivery system could be much improved. However, their operational capacity is sufficient overall to improve the animal health situation at national level, except with respect to emergency response, zoonosis control, laboratory diagnostic capacities and, in particular, research & extension and compensation for farmers affected by stamping-out measures. By contrast, not surprisingly, their operational capacity is much too inadequate to have a direct impact at producer level, where only clinical services and animal disease surveillance and notification are reasonable.

In most of the countries there is a partnership between the public and private sectors and producers, between state and private veterinarians, and between veterinarians and paraveterinarians.

More than 90% of the countries have started privatising their animal health services, with conflicting impacts on poor populations. While health care is now accessible to most farmers, they cannot afford current prices, with the danger of renewed outbreaks of certain diseases. There is insufficient supervision of the veterinary profession (in particular a lack of professional bodies), and this can lead to deficiencies (unfair competition, drug fraud, uneven health care quality, etc.)

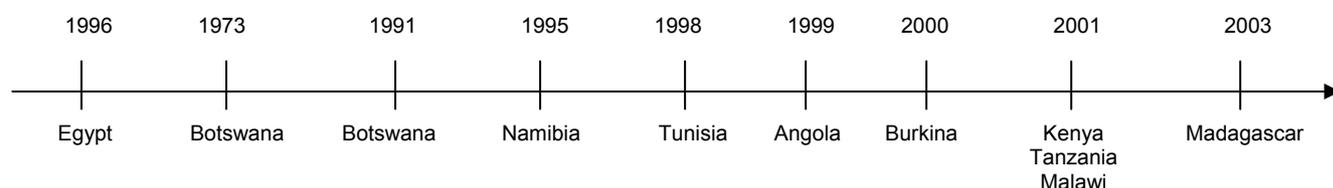
The decentralisation of the Veterinary Services, implemented in 73% of the countries, is favourably viewed in that it results in government aid becoming more geared to local realities and needs (locally-based advice and health care). However, it is a costly process in terms of equipment, infrastructure and skilled personnel, where good information flow is vital (chains of command and information feedback from the field).

The integration of the Veterinary Services into the general agricultural services, implemented in 73% of the countries, enables the countries to benefit from financial, logistical and human resources that they would not otherwise have had. However, it reduces the specificity of the different services covered, and hence the quality of the service provided, and indeed the main criticism of extension by training and visits is that it is too generalist.

The main problems facing farmers are a lack of education and logistical resources to actively participate in animal disease control. Training would provide them with the most appropriate means for acquiring knowledge, accessing technologies – which often already exist and are effective – and for participating in decision-making. To address these problems, many countries are introducing products (vaccines, diagnostic kits, etc.), technologies (tick control, tsetse-fly control, etc.), services (artificial insemination, extension, etc.) specifically targeted at poor populations, whilst others are developing participatory mechanisms or introducing specific programmes to control zoonoses or food-borne infections for the benefit of the most disadvantaged populations.

## D. Opportunities

Sixty-four percent of the countries have introduced a poverty reduction **policy** or **strategy** (PRSP/PRSC or other) specifically mentioning the importance of livestock or animal health, although in 2002, eight countries - Algeria, Guinea, Mali, Morocco, Mauritius, Democratic Republic of Congo, Somalia and Zimbabwe – said that they had not set up such a strategy/policy. A number of the countries with a poverty reduction policy or strategy introduced it some time ago, as shown below:



According to these countries, poverty and livestock aspects are essentially linked in terms of food security and human nutrition at national and household levels, as well as in terms of job opportunities. Production, productivity and the cost of animal products are all factors with a major impact on poverty. The principal activities that have been set up to strengthen the livestock sector are:

- o Supporting the livestock branches to improve structuring (development of professional organisations) and to improve access to markets. For short-cycle branches, activities include providing the poorest farmers with funds for settlement or restocking or to support them in the event of unfavourable climatic conditions (drought).
- o Institutional support to strengthen and harmonise health legislation, partnership between ministries (more effective application of regulations) and partnership between the public and private sectors, as well as introducing a system for disseminating information on the livestock sector.

The strictly animal health aspects also have a direct impact on poverty, especially animal diseases leading to livestock mortalities, reduced yields and costs for veterinary care and treatment limiting access to local and international markets. The principal activities introduced to improve animal health are:

- o Setting up funds for managing health crises (compensation for farmers in the case of a stamping-out policy).
- o Better animal disease surveillance and control, particularly of zoonoses (notably stepping up controls on imports and the movement of live animals, provision of vaccines, formulation of emergency plans) and of food safety inspection (in abattoirs and markets and for export products).
- o Strengthening Veterinary Services and analytical laboratories.

Within the general context of these poverty reduction strategies/policies, many countries have developed, or plan to develop, programmes establishing a direct link between animal health and poverty reduction. These programmes essentially involve:

- o Country-wide animal disease control, essentially by means of vaccination (Benin, Burkina Faso, Eritrea, Kenya, Madagascar, Morocco, Mauritius, Namibia, Uganda and Zambia).
- o Transborder animal disease control (Malawi).
- o Introduction of free vaccination campaigns (Tunisia).
- o Free distribution of veterinary medicinal products (Tunisia).
- o Support for the livestock branches - chiefly the poultry branch (Benin, Namibia and the Democratic Republic of Congo).
- o Increasing the income of rural populations (Namibia and Tanzania).
- o Providing animal health services (Tanzania).
- o Training livestock auxiliaries and farmers (Benin).
- o Increasing animal production (Egypt).

Six countries (Algeria, Angola, Guinea, Mali, Somalia and Zimbabwe) have not set up a poverty reduction programme specifically mentioning animal health activities.

**Financial instruments** have been developed specifically to aid poor populations as part of these strategies and programmes, such as introducing funds for settling farmers, for integrating young school dropouts into farming jobs, for compensating farmers affected by drought or stamping-out policies, as well as low-interest credit instruments and government subsidies for farmers.

The countries have also developed forms of support other than financial, including free vaccination campaigns, free distribution of veterinary products, free provision of animals mainly to village women or for restocking after a stamping-out operation.

Other livestock sector actors also receive financial support, such as private veterinarians who are given access to credit guarantee funds to set themselves up in practice.

The OIE (World Organisation for Animal Health) has an important role to play in poverty reduction. The countries overwhelmingly (100%) want the OIE to disseminate health information, develop tools, organise training sessions, engage in talks with international organisations and national policy makers and build the capacities of the veterinary scientific community.

The countries are particularly keen for the OIE to develop the following tools:

- o Practical guides (on livestock farming, identifying animal diseases and using and administering veterinary medicinal products).
- o Decision support tools.
- o Products (vaccines, diagnostic kits, veterinary medicinal products).
- o Provision of genetic material.
- o Setting up an electronic forum (for animal health and food hygiene).

The countries want the OIE to organise training on the following subjects:

- o Training for trainers and policy makers.
- o Animal health training (animal disease control, planning and evaluation of animal disease control policies, animal disease emergency plans).
- o Epidemiology, the importance of zoonoses, the economic importance of animal diseases, animal disease prevention).
- o Food hygiene training.
- o Information training (collection and dissemination of information by veterinary technicians, information management).
- o Cross-curricular training (risk analysis and management, positive experiences of poverty reduction, formulating and implementing legislation).

Finally, the OIE was also requested to:

- o Provide expertise for introducing health legislation.
- o Harmonise health legislation on a regional and subregional basis.
- o Review trade restrictions on exports of animals and animal products from developing countries.
- o Defend the veterinary profession (especially against the decentralisation process).

### **Summary: Opportunities for capacity-building**

More than 60% of the countries have introduced a policy/strategy establishing the key role of livestock and animal health in poverty reduction, and more than 70% have already divided this policy/strategy into national animal health programmes or programmes to support/strengthen livestock sectors. These programmes have been

accompanied by financial instruments (farmers' settlement loans, compensation funds, etc.), free services (vaccination campaigns) and donations in kind (particularly to producers for restocking herds), targeted at the different actors in the sector, mostly farmers but also private veterinarians.

The World Organisation for Animal Health (OIE) has a very important role to play in poverty reduction processes, especially in disseminating health information, developing tools, organising training, engaging in talks with international organisations and national policy makers and building the capacities of the veterinary scientific community.

### **3. DISCUSSION**

Twenty-two countries answered the questionnaire. A higher response rate would have been required for the results to be significant. The replies came solely from the Official Veterinary Services and did not involve all the actors in the sector. With wider consultation it would have been possible to gather more mixed reactions. However, the results do point to some clear trends concerning impacts and needs, which corroborate documented analyses.

#### **a) Poverty profile**

In most African countries, livestock is one of the few resources available to the poor that allows them to generate income. Livestock products also represent an essential source of nutrition and play an important role in social cohesion. As a whole, it is estimated that nearly 70% of Africa's poor rely on livestock. The economic and social contribution of the livestock sector is all the more important since there is a high poverty rate. A prerequisite for the optimum use of livestock as a means for reducing poverty is to learn more about the role livestock plays in poor households, and to take more account of the risks to which these vulnerable populations are exposed.

#### **b) Impact of animal diseases**

The poor are highly exposed to a wide range of animal diseases (a hundred or so in Africa), due to strong pressure from diseases (associated with climatic conditions, ecosystems, animal movements and livestock management practices) and to a poor capacity to control them (on account of political, organisational, financial or technological factors). These animal diseases can, in turn, further expose the poor to environmental risks (drought), economic risks (prices), social risks (marginalisation) and also political risks (insecurity). The main diseases are ranked according to their relative impact on income, nutrition, vulnerability, access to markets, both as a whole and for each of the principal production systems and animal species. There are several different types of impact: loss of livestock productivity (production losses, treatment costs, market disruption); loss of revenue from activities making use of animal resources (agriculture; energy; transport); human welfare (diseases or even deaths; food safety and quality); prevention costs (production costs; public expenditure) or sub-optimal use of production potential (animal species, genetics, husbandry practices). As a whole, animal diseases jeopardise the livestock assets of producers and poor countries, limit market-access opportunities for animals and animal products and restrict possibilities for intensifying livestock farming. Animal diseases also represent a serious public health and sustainable growth problem, as well as severely constraining the social and economic development of affected countries.

Transboundary diseases, diseases transmissible to humans and food-borne diseases (priority diseases) currently pose a particularly grave threat to poor populations, national economies and the economies of neighbouring or importing countries.

#### **c) Disease control capacities**

The national and regional operational capacities needed to assure the core functions of an efficient control system are largely inadequate (in terms of personnel, equipment, infrastructure and financing). The international community must urgently reconsider its support for reinforcing supervisory functions in the livestock sector, the foremost of which is animal disease control. Special attention needs to be focused on the efficient operation of the Official Veterinary Services (as distinct from livestock services or animal health services), in order to prevent and control transboundary diseases, diseases transmissible to humans and food-borne diseases. The quality of the Veterinary Services can be assessed on the basis of the general

principles laid down in the OIE Code. This self-assessment provides the national authorities with a major decision-support tool with regard to the priorities and resources to be assigned to their Veterinary Services.

#### d) Opportunities for capacity-building

The development partners, under the leadership of the OIE, are requested to invest in building the technical, scientific and operational capacities of the global control system. This system has to be seen as an international public good and placed under the responsibility of the Official Veterinary Services. We recommend sustained involvement, both globally (incentive framework, institutions and investment) and collectively (national, regional and international), with a strong focus on poverty reduction (Poverty Reduction Strategy Paper; access to services; strategic research). In particular, the national structures (Official Veterinary Services, jointly with the private and sector and associations) must convince their Finance Ministry of the importance of investing in animal disease control and prevention. At regional level, the countries' Official Veterinary Services must work together within the framework of the OIE if they wish to be able to attract the interest of funding agencies. Based on well-constructed national and regional applications, the funding agencies must, in their turn, collaborate more, both amongst themselves and with international organisations (OIE, FAO and research institutions), to develop a clear and convincing agenda. In particular, it is proposed that a significant health component should be developed with the OIE as part of the ALive programme.

### 4. CONCLUSION

Given the importance of livestock to poor populations and the threat posed to their livelihoods by animal diseases that have an impact on livestock productivity and human health, any programme aimed at controlling or eradicating such diseases with serious consequences for the poorest sections of the human population will have a major direct impact on poverty reduction. This makes animal disease control an international public good which requires major, sustained and coordinated support from the international community. This support will materialise only if the African countries send the international community a strong and convincing message.

In Doha, the World Bank, recognising that animal disease prevention and control is an *international public good* and a key factor in poverty reduction, promised to support programmes to build the national capacities of the developing countries, jointly with its partners. Its promise must be fulfilled. This calls for major efforts and investment, which relies on collaboration between the donors and specialised institutions.

The Africa Region of the World Bank has initiated steps towards a regional partnership for developing livestock production in Sub-Saharan Africa (*ALive*). A strong health component could be a major factor in the proposed partnership. The OIE, its regional representation and the Africa Commission could be commissioned by their Delegates to play a key role in promoting, formulating and implementing it.

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