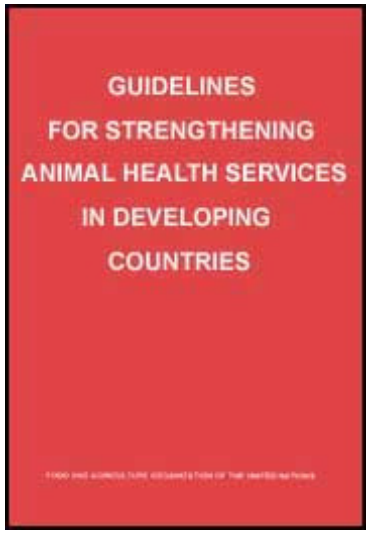

Guidelines for strengthening animal health services in developing countries

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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 1991

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Preface

The purpose of this publication is to assemble information from various sources to assist developing countries that, with the objectives of providing more effective animal disease control for improved food production and livestock development and protecting food safety for the consumer, are planning to upgrade their official health services in accordance with internationally accepted principles.

A large volume and variety of technical publications on the many different aspects of animal health services under various social, economic and ecological conditions with many different animal disease situations are available. Following requests from many developing countries, a compilation of major experiences of animal health services has been prepared in the form of this publication. The document is based on previous Food and Agriculture Organization of the United Nations (FAO) publications such as *Standard of Veterinary Services* (1974), World Health Organization (WHO) and

International Office of Epizootics (OIE) publications, literature sources and technical reports dealing with this subject. Personal experiences of FAO experts and of the participants of the FAO Expert Consultation on Animal Health Services in Developing Countries, Rome, 15-19 October 1990, represent a very important contribution to this document. The Expert Consultation was attended by selected chief veterinary officers from all regions of developing countries. The final editing of the document was carried out by Drs A.K. Chatterjee, W.H.G. Rees and J. Thomson, former chief veterinary officers of India, the United Kingdom and Zimbabwe respectively.

It is hoped that it will prove useful to the official animal health services in developing countries in their important role of improving animal production and food safety, which is vital for the well-being of all humankind.

V. Kouba

Chief, Animal Health Service - Animal Production and Health Division

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Chapter 1: Introduction

The control of animal diseases and the promotion and protection of animal health are essential components of any effective animal breeding and production programme. Despite remarkable technical advances in the diagnosis, prevention and control of animal diseases, the condition of animal health throughout the developing world remains generally poor, causing substantial economic losses and hindering any improvement in livestock productivity.

In developing countries, animal health services were established with the main objective of controlling major contagious and infectious diseases, such as foot-and-mouth disease, rinderpest and contagious pleuropneumonia, as well as

parasitic diseases, such as trypanosomiasis and tick-borne diseases. This was obviously the first priority, since the control of these diseases is a prerequisite to any successful livestock development programme.

With the present concern for sustainable economic development, more attention is now being given to other diseases that affect livestock productivity, such as helminthiasis, nutritional diseases, reproductive disorders, etc.

The successful control of disease depends initially on its timely and accurate recognition and on the presence of sound diagnostic capabilities based on effective working links between laboratories and field services. Emergencies created by outbreaks of major infectious diseases demonstrate the need for establishing, strengthening and improving such diagnostic services. As well, particular attention should be given to the development of an efficient animal disease information system.

Beyond the national level, a general increase in the movement of animals and animal products underlines the importance of international cooperation in the prevention and control of animal diseases.

Most animal health services in developing countries do not have at present adequate technical and administrative infrastructures to carry out the tasks and duties necessary for the efficient control of animal diseases and for consumer protection.

In many developing countries, there is either a shortage of skilled veterinary personnel or their services are not correctly utilized. The problem is exacerbated by deficient veterinary infrastructures and inadequate disease control programmes, veterinary legislation and information services, as well as a lack of transport, communications, veterinary products and equipment. The most common problem is the shortage of funds to sustain the activities of veterinary staff. In some developing countries, the animal health services are not given the appropriate legal power in the administrative system.

These shortages significantly reduce the effectiveness of animal health services control measures against major animal diseases. By exploiting existing conditions, local resources and international help, possibilities for improving of animal health service programmes are increased.

Veterinary education and training should receive the highest priority; however, more emphasis must be placed on the

qualitative and practical aspects. Effective personnel development requires adequate planning of staff requirements, improved curriculums for undergraduate and postgraduate studies, training of auxiliary personnel and greater interregional cooperation to exploit existing training facilities fully, among other things.

Animal health services should be further developed by improving their efficiency. While the control and prevention of major infectious diseases clearly remains a government responsibility, some veterinary tasks such as the treatment of individual animals could be undertaken in other ways. Privatization is one way of improving some sectors of animal health and of responding suitably to the needs of animal owners. Other ways include contracting out certain services, creating farmer cooperatives and producer associations, recovering government costs more efficiently and using the revenue thus generated for selective subsidies. Several countries have already taken steps to reorganize their veterinary services in this way.

Developing countries must address this problem. This publication aims to assist them in improving livestock production through better control of major animal diseases. It is not intended to be a comprehensive text describing in-depth all aspects of a complex subject with worldwide variations. Instead, it is meant to serve as a guideline, providing general background information on basic topics. Its main objective is to assist animal health authorities in their organization, planning and management activities.

The contents cover major problems facing official animal health services in developing countries in contributing to the production of food of animal origin and livestock development as integral components of general social, economic and agricultural development. Other priorities of animal health services include the protection of humans against diseases that may be transmitted by animals and the production of safe food.

Biological and pharmaceutical production may be the responsibility of some services, however, only aspects of the control and management of veterinary biologicals and drugs are included in this publication.

The major issues dealt with in this publication are the objectives, functions, organization and management of animal health services. Without going into detail, relevant information, statements and recommendations make up the basic text. This general approach does not permit specific disease control or specific social, economic and ecological conditions to be dealt with. However, information is provided in the annexes on specific topics and in the selected bibliographies of

general interest publications.

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Chapter 2: General principles of animal health services

Policy, strategies and priorities

The *animal health services policy* in developing countries represents an integral component of overall government, social and economic policies in the fields of agriculture and rural development, public health, food processing and import/export of animals and animal products. In order to obtain the necessary political, economic and public support, animal health services policy should attempt to contribute effectively to the overall development of a country, aiming at improving the standard of living of its inhabitants.

An effective and desirable animal health services policy should first contribute in a practical way to reducing food losses due to animal morbidity and mortality, increasing productivity in animal population/herd yields and draught power, protecting human health against diseases transmissible from animals and ensuring humane treatment of animals.

This policy usually reflects specific social, economic and political systems and philosophies, which are different in each country. The variety of animal health policy includes different animal health services organization and programmes. The spectrum varies from country to country. In some, all activities of the animal health services are carried out by government veterinary staff (completely or partly free of charge). In others, animal health services are private, with the exception of a few veterinary officers in government institutions. However, in the majority of developing countries today, a mixed system between the extremes prevails: preventive and control/inspection programmes are covered by government services while private veterinarians have direct contact with animal owners for the treatment of sick animals.

The *animal health services strategy* should effectively contribute to the creation of conditions necessary for an uninterrupted animal breeding, production and reproduction process and for other effective utilization of domestic animals for human needs. One of the most important tasks of government services is to protect the national territory against the introduction of exotic diseases.

Animal health services strategy in developing countries reflects the application of general policy. It identifies the concept, priorities and principal objectives of animal health programmes. The strategy should also determine the systems required to achieve these objectives and to solve animal problems in the most effective way. It should respect the country's needs and conditions and stage of development, as well as economic and organizational possibilities.

The strategy should be the realistic outcome of analysis and prognosis of the animal health situation and its development and of the factors that can influence the disease situation and animal health programmes, such as economic, sanitary (public health), social, political, ecological, environmental and organizational conditions.

Decision-making on national animal health strategy is an important responsibility. On one hand it deals with the protection of the health of the human population, and on the other hand with the protection and utilization of the whole animal population and its products in the country. The aim of the strategy is to achieve the best possible results with available resources, or, to achieve its goals with the minimum possible inputs.

There are several different types of animal health strategy, all relating to the specific problems of individual countries. The strategy should first provide general coverage for all animal health service activities and then complement this coverage with specific solutions for selected problems.

Priority should be given both to local strategy, which should be linked with the national strategy, and to long-term strategy, which should be reflected in middle- and short-term programmes.

Animal health services priorities **must be determined in each country, as there is no country in the world where conditions exist for solving all problems. Prioritizing problems helps to define effective strategy and programmes.**

Identification of priorities also facilitates the concentration of limited resources on the most important animal health problems. The order of priority should be the result of cross-evaluation of biological, economical, sanitary, social and environmental priorities, corrected by feasibility studies and the availability of resources. The availability of effective tools with which specific goals may be achieved under local conditions, as well as the availability of funds, labour and material resources, must be taken into consideration.

It has proved useful first to list the problems according to their rank of importance. Those problems for which no practical or effective solutions or no diagnostic, control, treatment or eradication methods have been found should be moved to a lower rank of priority or postponed for the future. The same procedure should be applied if the necessary resources and other basic conditions are lacking. The priorities should be limited to a realistic number.

Benefit/cost analysis

As an aid to the decision-making process on priorities, a benefit/cost analysis may provide valuable information. A simple comparison of benefits and costs could be made with available data to obtain some idea of priorities in disease control. However, the results may be unreliable. More complex methods using comprehensive economic and social analyses that take into account depressed animal productivity caused by subclinical disease, as well as specific infectious diseases, require additional expertise. (Further details are provided in Chapter 6, under the heading "Economic evaluation".)

If government or donor organization financial support for animal health programmes or projects is to be forthcoming, it is important that their planning be based on sound, comprehensive data and information that can be fully justified and is well-presented.

Organization

Organizational principles

Good organization of animal health services is the first precondition for any successful application of animal health strategy, programmes and measures. Organization should accommodate the objectives, programmes and activities in a given country (territory or sector) at any given period of development. It is a fundamental instrument for creating the necessary conditions for the realization of effective animal health service functions.

The organization should be flexible, so that it can adapt, if required, to changes in animal disease situations and conditions. It should create necessary conditions for providing animal health services and applying disease control measures within the limit of the whole country (territory), and it should be ready for action at all times.

Animal health services can be based on the activities of government, enterprises or private veterinary surgeons. All have their advantages and disadvantages. In most developing countries these forms of animal health services exist in different sizes, structures and combinations.

From experience it has been found that *centralized organization* with vertical operation offers better conditions for *national* prevention, control and eradication programmes and for protection of the livestock population. It also creates conditions for more uniformity and better coordination of diagnostic methods and control measures for mobilization activities in emergency cases.

A *decentralized* organization with horizontal operation offers better management conditions for identifying and solving *local* problems and the treatment of diseased animals and for increasing animal productivity. Decentralized organization creates conditions for closer cooperation with farmers, the meat industry, suppliers and consumers.

In practice, the strengths of both systems are combined to form a *mixed organization* of animal health services, which is more likely to deliver effective services at both the local and national levels.

Animal health services structure

The structure of animal health services usually corresponds to the general administrative, political/financial structure in the country concerned. Therefore it varies from country to country.

The central animal health service administration, under the direction of the national Chief Veterinary Officer (CVO), is responsible for technical activities in the country carried out by government officers. It is usually responsible for technical supervision of private and cooperative enterprise, in the areas of animal disease control, human health protection and/or animal production. As well, it generally has overall responsibility for national veterinary institutes, such as central diagnostic laboratories, vaccine production and control laboratories, national research and training institutes and central storage, and for local-level institutions.

At the local level, provincial CVOs supervise provincial diagnostic laboratories, veterinary clinics, storage and other institutions of provincial importance. Similar structures may also be at a lower organizational level, i.e. at the district level, if such institutions exist.

The most important tier of the animal health service structure is the field animal health service, which is in direct contact with producers, animals and their products. The work done at the village, farm, herd/flock and individual animal levels is decisive for any animal health programme.

Administration is generally facilitated by having staff perform functions for which they have been trained. It is illogical to have trained veterinarians in charge of accounting, transport or secretarial services. Even at higher organizational levels, such as planning or public relations, it is often advantageous for the animal health service to engage competent, trained staff for these posts. In all cases, their work should be directed toward animal health activities and be supervised by the CVO.

General experience suggests that animal health and production extension personnel should operate separately from agronomy extension personnel at the field level. The background and training of personnel in each service are different; combining the two extension functions dilutes their effectiveness for each function.

Standards and norms

Animal health legislation should be supported with standard definitions and structured by national precedent. However, biological and technical standards and definitions should comply with international norms in order to facilitate

comparisons and communication between countries.

In preparing national animal health standards, international documents and recommendations should be applied. National standards should complement international ones while respecting local needs and conditions. As examples of international standards, the following documents are pertinent: Food and Agriculture Organization of the United Nations (FAO)/World Health Organization (WHO) *Codex Alimentarius*, International Office of Epizootics (OIE) *International Animal Health Code* (rules recommended for international trade in animals and animal products), OIE *Manual of Recommended Diagnostic Methods and Requirements for Biological Products* and FAO/WHO/OIE *Animal Health Yearbook,* which includes definitions of animal morbidity, etc.

Bibliography

FAO. 1990. *Report of the Expert Consultation on Cost/benefit for Animal Health Programmes in Developing Countries. Rome*, FAO.

ILCA. 1984. *Financing animal health services in some African countries.* Pastoral development network. A. Anteneh. Addis Ababa, ILCA (Livestock policy unit).

PAHO. 1986*. Administración de programas de salud animal.*

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Chapter 3: Objectives and functions

Objectives

- **Development of animal health and production**
- **Protection of human health**
- **Protection of animals and welfare**

The achievement of these objectives involves the effective and coordinated performance of many diverse activities, which together are the functions of the service.

Functions

Development of animal health and production

- **Surveillance**
- **Disease investigation**
- **Disease prevention, control and eradication**
- **Quarantine**
- **Emergency response**
- **Clinical services**
- **Control of animal drugs and biological products**
- **Veterinary inspection**
- **Research**

- **Training**
- **Wildlife disease monitoring**
- **Veterinary aspects of aquaculture**

Protection of human health

- **Control of zoonoses**
- **Food hygiene**
- **Meat inspection**
- **Residue testing**
- **Training**

Protection of animals and welfare

- **Ensuring humane treatment of animals in general**
- **Welfare standards in markets, during transport and slaughter**
- **Control of laboratory animals**

Enforcement of legislation, extension services and transfer of technology are common to all of the above activities. Although the main functions will be considered separately, many of them overlap. The service should be well-coordinated and closely integrated to achieve its goals effectively. Senior officers in charge of the different components should ensure that the structure and staff numbers and qualifications are appropriate for the tasks to be performed and that management integrates their activities.

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Development of animal health and production

Surveillance

National animal health services should have a properly organized system of disease surveillance. Surveillance involves the close observation of the disease profile in a population. On the national scale, the population comprises the entire animal population of the country, as well as the human population, where zoonotic conditions are concerned. To be useful, surveillance should include the systematic recording and analysis of observations so that current disease status may be defined and any changes may be documented.

Routine surveillance requires that all regular field and laboratory disease control activities are documented in a systematic fashion and reported to a central unit responsible for collating and analysing the data. This activity should be a continuous function and an integral part of the daily work of all staff.

Active surveillance is also required to provide specific information about individual disease conditions at a particular time. This type of surveillance generally takes the form of purpose-designed surveys and provides information on which decisions may be based. One common example is the serological survey undertaken to provide an estimate of the prevalence of an infectious disease before deciding to implement an eradication campaign, or as part of the campaign's design process. More complex surveys are done to estimate the impact of a disease or parasite on animal production so that economically effective control measures can be developed or recommended.

The design and management of surveillance activities of a national animal health service is usually the responsibility of the epidemiology section. The section utilizes the results of its data analysis for:

- **assessing the need for, or progress of, disease control in control eradication programmes at farm, area, regional and national levels;**
- **national and international reporting of disease statistics;**
- **developing and monitoring national animal health programmes;**

- **developing and managing quarantine policy;**

- **facilitating export trade in animals and animal products.**

This last activity is assuming greater significance as efforts to reduce non-tariff barriers in international trade progress. The evidence needed by a country to support and justify the imposition of quarantine barriers is its ability to document freedom from a disease - evidence that can only be convincingly provided by efficient surveillance. Similarly, evidence of the economic impact of a condition, required to persuade politicians to finance a control campaign, may come from the data of a surveillance programme.

Disease investigation

Investigation of animal health problems in the field is the responsibility of the field staff under the direction of the provincial or district veterinary officer, who may be based in a field office or in a diagnostic laboratory. In either case, it is imperative that the veterinary officers have the widest possible contact with the livestock producers in their areas because the producers provide information that is essential for an epidemiologically valid disease investigation.

Field investigations are generally conducted in response to reports of health problems from breeders/producers. Regular reporting of such problems requires that producers have confidence in the veterinary field staff and that they have regular contact with them. Local animal health staff should be based in a centre from which they can readily move to all parts of the area with available transport. They should also have ready access to simple laboratory support at the local or provincial level. However, local disease investigations are also performed as part of larger regional/provincial or national programmes. In particular, the origins of an outbreak of disease in one area should be traced so that distant foci of infection can be detected. This in turn may identify failures in local disease control measures, such as vaccination breakdowns or unauthorized movement of animals.

Field investigations should always be fully documented. It is important to submit diagnostic material for laboratory examination in order to confirm the field diagnosis. Valuable information and experience are often lost because no report was written after the investigation took place.

In countries where there are nomadic livestock owners it is particularly difficult to investigate disease outbreaks adequately. Nevertheless, investigation is very important because the diseases may spread rapidly via the movement of animals during the incubation period. If a diagnosis can be established quickly it may be possible to treat or vaccinate the moving herds, thus preventing a rolling epizootic. It is clear that animal health field staff must have the legal authority to compel owners to apply the prescribed sanitary measures and to prevent further movement of animals. A communication system should be established so that the national animal health authority can be quickly informed when the potential exists for serious extension of an outbreak. This would enable the service to apply coordinated control measures at regional/provincial and/or national levels.

All investigations of disease outbreaks should begin with clinical and epidemiological examinations of diseased and suspect animals. A detailed history should be recorded in writing immediately after the first examination is completed. The information recorded should include:

- **numbers and characteristics of the animals in each herd or group;**
- **management factors such as type and quality of feed and water available;**
- **all animals that were introduced into or left the herd;**
- **other factors that may have influenced the origin and development of the disease.**

If a dangerous transmissible disease is suspected, immediate provisional quarantine measures should be applied and details of all contacts, both human and animal, should be recorded. When more than one owner is concerned, every effort should be made to corroborate the most important points in the history with everyone involved. This collaboration can yield information of great diagnostic value, as well as indications of the source of the disease. Once all the available epidemiological information has been collected, the diagnostic process should continue with the physical examination of the other animals involved. This should include a large sample of the group and, in sedentary herds, should extend to neighbouring herds. The examination will involve:

- **a complete clinical examination of sick and apparently healthy animals. Where blood tests are necessary, samples should be taken from animals in all available stages of the disease;**

- **full pathological examination of dead animals;**

• collection and submission of necropsy samples where laboratory examination is required. (This should not prevent the making of a tentative diagnosis and the corresponding advice for control of the suspected disease.) The differential diagnosis, together with requests for specific tests and a copy of the epidemiological and clinical histories, should be forwarded with appropriately preserved specimens;

• when laboratory results become available, the case should be reviewed to confirm or revise the diagnosis. In many cases it will be desirable to revisit the animals to change or reinforce the previous advice on control measures. In cases involving "notifiable diseases" the provincial and chief veterinary officers should be informed immediately so that measures such as movement control or vaccination may be imposed over the widest possible area, as soon as possible.

An epidemiological assessment of the outbreak should be conducted at several levels, local, provincial and central, according to its severity and scale. Methods of tracing the origins of the outbreak should be instituted and coordinated control measures applied. This basic investigative procedure should be standard in all transmissible disease situations.

It is extremely important that all the information obtained, the procedures adopted and the outcome should be officially recorded.

Animal health services should always seek to prevent disease, and a part of the epidemiological follow-up of any disease investigation should be an attempt to identify appropriate methods of prevention. Transmission of these preventive methods to farmers/producers thus requires an effective extension effort. While this teaching process should naturally become an integral part of the activities of all field officers, deliberate, organized extension methods should also be employed.

However, this does not require the development of a large "extension service". Extension activities should be a normal part of the everyday duties of all animal health service officers. Nevertheless they should receive continuous training in extension methods and full support for these activities.

Disease prevention, control and eradication

***Major epizootic diseases*. One of the main functions of an animal health service is to control and, if possible, eradicate the major epizootic diseases, e.g. foot-and-mouth disease, rinderpest, African swine fever, contagious bovine pleuropneumonia, tick-borne diseases, animal trypanosomiasis, etc. All of these major epizootic diseases have very serious effects on animal production. It is only after they have been brought under control that improved breeding, production and control of other enzootic and more readily suppressed diseases can be achieved.**

Major epizootic diseases generally can only be controlled by well-planned programmes, coordinated and implemented by a strong central veterinary authority. In large countries much of the day-to-day running of programmes can be decentralized to the provinces or regions. *It is essential that there is a strong control point responsible for setting up, coordinating and implementing policy.*

When planning disease control policies the following must be considered:

- **the distribution of the disease, i.e. how widespread it is in the country and how far it is expected to spread;**
- **the economic impact of the disease on the country and the benefits to be gained by its eradication. This should include any direct effects, such as loss of production, milk supply, draught power, etc., as well as the effect on trade in animal products and exports;**
- **methods of preventing a resurgence of the disease after it has been eradicated. These methods may involve border control and surveillance;**
- **methods of controlling and eradicating the disease. These must be practical and sustainable;**
- **availability of sufficient financial support;**
- **the presence of necessary legal powers.**

When it has been decided that it is essential and economically justifiable to eradicate a major epizootic disease, detailed plans should be drawn up to carry this out.

Before launching the eradication or control programme, there should be sufficient staff/transport infrastructure and finances to sustain and carry out the programme. In some cases it may be better not to launch a disease control programme if it cannot be sustained.

The programme should be flexible enough to accommodate changing circumstances and to cope with unforeseen problems.

***Control of zoonotic diseases*. The Animal Health Service should play a major role in the control of the more important zoonotic diseases. As with the epidemic diseases, these can only be controlled and eradicated with strong central planning. Each Animal Health Service should decide which zoonotic diseases are most important and implement the appropriate control policies. The diseases selected may not be as economically important to animal production as some of the others, but if they have a major effect on human health then they assume a much greater importance.**

In the majority of developing countries some of the most important zoonoses requiring control are rabies, tuberculosis, brucellosis, anthrax and leptospirosis. The best method of controlling disease in humans is to eradicate infection from the animal reservoir. Other diseases will also be important in some countries.

There are other groups of zoonoses that affect man mainly through infected or contaminated food of animal origin, such as salmonellosis and cysticercosis. These may be controlled mainly by food inspection and proper hygiene to reduce the level of infection in the animal population.

***Prevention and treatment of other diseases*. Non-infectious diseases, such as nutritional diseases, reproductive diseases and plant and pesticide poisoning, cause considerable financial losses. In general, insufficient veterinary effort is devoted to them despite the great production losses. Activity directed at identification, treatment, prevention and management of non-infectious diseases should be supported on a day-to-day basis and dealt with by local veterinary services. However, when micromineral or protein/energy deficiencies occur over wide areas, some centralized coordination may be necessary.**

Prevention and treatment of non-infectious diseases call for traditional veterinary services, such as investigation and diagnosis. However, sound husbandry and management by farmers is the key to prevention. Prevention calls for

emphasis on extension activities and training for farmers, continuous procurement and distribution of preventive medications or commodities and timely application of preventive measures. Some noninfectious disease conditions, such as toxicities, may require permanent exclusion of animals from contaminated areas or legislation and enforcement to prevent further contamination.

The financial losses from other diseases can be high. Diagnosis is often relatively inexpensive, as are extension efforts for farmers. The major burden generally falls on the farmers in the areas of daily management, purchase of preventive drugs and timely use of preventive measures. Once major epizootic diseases are controlled, other diseases will assume a higher priority by farmers and governments.

Disease-free countries and zones and infected zones. **The concept of declaring defined areas of countries as disease-free or infected is used both for international trade purposes and for disease control and eradication campaigns within a country. The criteria for deciding the disease status of a country or zone will vary according to the disease and also to the vaccination status and policy of the importing and exporting countries.**

The eradication of an animal disease from a country is generally a long process and may take many years of control action. The rate of progress is frequently very different in the various areas of a country. To allow for these differences, and to facilitate relaxation of export restrictions, the concept of disease-free and infected zones has been developed.

Disease-free country**. A country may be considered free of a specified disease if:**

- **the disease is compulsorily notifiable in the country;**
- **all suspected cases of the disease are immediately investigated;**
- **no clinical serological, epidemiological or other evidence of the disease has been found during a prescribed period (this will vary according to the epidemiology of the disease);**
- **a statistically valid surveillance programme has operated for a period to establish freedom from the disease;**
- **the importation policy of the country is designed and implemented to maintain the freedom.**

***Disease-free zone*. A zone may be considered free of a specified disease provided all the conditions set out in Chapter 3 under the heading "Surveillance" are satisfied. In addition, the boundaries of the zone must be clearly defined and official veterinary control must be effectively applied within this zone and at its borders for animals and animal products and their transportation.**

***Infected zone*. The zone must be clearly defined under the appropriate legislation and be of a minimum area and radius from the centre of the disease. This will vary according to the epidemiology of the particular disease. Within and et the border of the infected zone, there must be effective official veterinary control in operation for animals and animal products.**

The time during which the infected zone remains in operation will vary according to the disease and the sanitary and control measures applied.

In relation to a vector-borne disease, the factors to be taken into account in delineating the extent of an infected zone should also include:

- **the presence, or otherwise, of the insect vector throughout the year in the surrounding territory;**
- **the climatic conditions and their effect on the vector;**
- **the presence of geographical barriers, such as mountain ranges, areas of arid terrain and water, to act as natural barriers to the movement of insect vectors.**

***International trade.* The relevant chapters in the OIE International Animal Health Code should be referred to for specific disease conditions.**

Quarantine

The term quarantine is used to cover all restrictions on the movement of infected or suspect animals or material to prevent the spread of disease.

Quarantine establishments should be near a seaport or airport or other facilities used for loading or unloading animals for export or import so that there will be minimal risk of contamination when transporting potentially infective animals. They should not be adjacent to other livestock facilities, such as farms, abattoirs, livestock markets or stock routes. They should be surrounded by an animal-proof security fence so there can be no possible contact with animals from outside. It is useful to subdivide the animal accommodation so that any potential disease problems can be isolated in small units. The sewage system should be built so that effluent is treated to kill potentially dangerous pathogens. Used bedding and manure should be either held to the end of the quarantine period or, if removed during quarantine, carefully destroyed to prevent the potential spread of disease.

Guidelines to facilitate international livestock movements may be summarized as follows:

- **Animals for export should be examined, certified and marked and, if the importing country so requires, vaccinated against particular diseases. The animals may also be subjected individually to allergic or serological tests to detect reactors to specific diseases.**

- **Observation of live animals before shipment may be carried out either at the place where they have been reared, in an agreed quarantine or in an official specially arranged and equipped quarantine. In any case, the groups of animals should be kept in complete isolation.**

- **Before shipment for export, the animal health inspector should prepare one certificate giving the origin of the animals and another declaring that they are healthy and stating the exact duration of the period they were under observation, any vaccinations carried out and any tests performed, including the results.**

- **Strict precautions should be taken to ensure that vehicles used to carry the animals are properly disinfected and treated to destroy pathogens and arthropod vectors before the animals are loaded. The transportation of animals by road should be carried out as rapidly as possible, consistent with their safety. Drinking water on the journey should be obtained from safe sources and sufficient supplies of forage and rations should be provided before the beginning of the journey, so that it will not be necessary to purchase feed on the way.**

- **In order to protect the countries through which animals or their products are transported against accidental**

infection, the road transport vehicles (lorries and wagons) should be completely watertight and officially sealed. No animals, articles of any kind or scraps of animal origin should be unloaded from the vehicle during the stops unless they are incinerated immediately.

• Prior notification must be given to the importing countries' officials of the intended arrival of a consignment of animals. The veterinary officer in charge of quarantine should receive a report from the chief officer on board the ship or aircraft of any accidents or incidents that occurred during the journey. The officer should also receive the health certificates accompanying the animals before the animals are unloaded.

• If an epizootic disease has been reported and import permission refused, the veterinary authorities of the exporting country should be informed immediately of the situation. The consignment of animals may be sent back to the country of origin or, in some circumstances, the animals diagnosed as being affected by a contagious disease might be disembarked and slaughtered and the carcasses destroyed. If a contagious disease is only suspected, the animals should be unloaded and placed under observation in a strictly isolated place of quarantine or a properly established quarantine station until a decision is made regarding their acceptance or disposal.

• Animals for slaughter should be taken without delay to a slaughterhouse specially approved to deal with imported animals.

• Animals for breeding and rearing should be taken to an approved farm quarantine or to an official quarantine station where they will be kept under observation for an established period and subjected to the tests set out by the legislation of the importing country.

• At the end of this period of observation and examination the further transport of animals should be authorized and controlled by the animal health services of the importing country.

The conditions for import (whether livestock or products) are determined by the importing country. It is therefore essential for the country to define its requirements clearly. Sanitary measures should be aimed at the important diseases and adequate quarantine facilities should be located near the point of entry to the country.

Countries should develop an import policy based on a clear understanding of the disease situation inside the country. Even if major diseases are enzootic in the importing country, it may be important to use quarantine to prevent entry of new strains or types of disease agents. For some diseases there are still no reliable diagnostic tests. Sometimes testing can be replaced by authoritative certification of the disease-free history of a herd, flock or region, but this will depend very much on the competence and knowledge of the certifying veterinary authority.

The most essential requirement is, of course, security - the whole purpose of the quarantine procedure. If livestock movement from one environment to another is to take place, a potential danger of disease transfer exists. The acceptance of small margins of risk has often resulted in major benefits to livestock producers through the introduction of new breeds of livestock. The quarantine process reduces the risk, and if the principles are applied assiduously enough the risk of disease introduction can be minimized. However, it must be accepted that there is some possibility of disease occurring at some stage between initial testing and final release and the quarantine station phase in the import country is very often the last chance to prevent a disease introduction.

Emergency response

***Planning and preparation*. The cost to a country of an existing animal disease is the sum of the losses that such a disease produces in its animal industry plus the cost of control measures. However, to calculate the cost of an emergency disease that might invade the same country is a subject of speculation that includes hypothetical assumptions and different scenarios, e.g. an outbreak with quick eradication by stamping out or an outbreak not controlled and leading to an enzootic situation. Furthermore, the appearance of an emergency disease may also hinder the export of animal products and even that of other products that may be suspected of contamination.**

The prevention and control of emergency diseases is a task involving livestock owners, veterinarians and other authorities a region or country. Effective planning for emergency situations is crucial if success is to be achieved. Planning procedures are elaborated in Chapter 7.

Actions in emergency

***Initial actions*. Any suspicion of an exotic animal disease should be immediately reported to the official enforcement**

authority (designated in the animal health legislation) and to the central animal health service.

The first action should be to enforce strict measures to isolate the affected farm or village to prevent further spread of the disease.

Quarantine restrictions should be imposed on the suspect property where necessary to prevent spread of the disease. This should be done using a standard form that conforms to the requirements of the legislation and contains detailed, specific directions to the owner.

Specialists and/or the responsible senior officers should visit the affected place as soon as possible. They should establish or reconfirm clinical and epidemiological diagnosis and provisional control measures and also collect appropriate samples for laboratory examination.

At the same time the most appropriate measures for control and eradication should be immediately initiated.

***Follow-up action*. If the disease is confirmed, the relevant international and other organizations should be notified.**

When the presence of an emergency disease is confirmed in a country, the animal health services should immediately initiate steps for the official declaration of an animal health emergency and take the necessary measures for its immediate control and eradication.

For the purposes of control and eradication of animal diseases, a country may be considered as a whole or it may be divided into regions or subregions, each having a responsibility for the implementation of an eradication campaign. The authorities responsible for the campaign should collaborate fully with all officials and private personnel involved in the campaign.

In order to be fully aware of the development of the campaign, information bulletins should be published and meetings of authorities concerned should be held periodically.

Steps to be followed for control and eradication of exotic diseases include:

Vigilance and reporting. This is the responsibility of veterinarians (government or private), livestock owners and laboratory technicians. A prompt report may permit immediate control action before extensive spread. Emergency reporting procedures and secure transport for samples should be established.

Quarantine of infected areas. Quarantine measures have to be imposed and should remain in force until the emergency disease has been eradicated. Movement of animals and, as applicable, animal products, feed and all material that could be infected or contaminated must be forbidden within the infected area.

Access to the area should be restricted to authorized persons involved directly with the campaign and sanitary measures should be reinforced to avoid spread of the disease by farmers, veterinarians, etc.

The quarantine measures should be maintained until clinical and laboratory tests indicate that the causal agent has been eliminated from the infected area and that the maximum incubation period from the last evidence of disease has been exceeded.

Epidemiological investigation. In order to establish the origin of the infection, its extent and the measures to be undertaken for its control, an immediate investigation should start as soon as the emergency disease is confirmed.

All relevant livestock or livestock product movements in the suspected area should be carefully traced and the resulting information analysed to identify the origin of the disease and attempt to predict new foci. Farms located in the surrounding area should be visited periodically for inspection and testing in order to find and eliminate any new cases.

Investigative procedures require that a detailed record of movements from all infected places during the relevant period is made. Also, all contact places must be systematically visited and the animals on them must be examined and tested if necessary. Simultaneously all properties neighbouring an infected place should be visited, animals inspected and investigative procedures commenced where necessary. For these activities large-scale maps are required.

If an arthropod vector is suspected, a specialist should be included in the epidemiology team.

Slaughter and disposal of infected and exposed animals. In the case of emergency diseases transmitted by contact, infected and exposed animals should be slaughtered and their carcasses buried, rendered or incinerated. This measure ensures the removal of potential carriers that would perpetuate the disease.

Compensation. It is essential that appropriate compensation is paid when animals are compulsorily slaughtered for disease control purposes and that farmers are aware of this, otherwise they have a strong disincentive to report unusual animal health events. On the other hands, compensation should not be so high as to provide animal owners with an incentive to allow their stock to become infected.

Cleansing and disinfection. In order to destroy any causal organisms in a location, the premises and equipment should be thoroughly cleansed and disinfected with an approved disinfectant after all infected or exposed animals have been removed. The premises should remain empty of susceptible livestock for a period, depending on the epidemiology of the disease encountered.

Clinical services

In many developing countries the intensity of animal production has been too low to encourage the development of private veterinary practice. As a result, government animal health services have provided some clinical services, along with the more traditional government activities. This mixture of clinical and regulatory veterinary medicine has frequently proved satisfactory, because it fosters a veterinarian/producer relationship that facilitates veterinary inspection of livestock and informal extension while encouraging cooperation and notification from the producer. The value of this relationship should not be underestimated, particularly in countries with very extensive animal production systems where provision of a purely clinical service is likely to be uneconomic for the private veterinarian.

Nevertheless, current economic stringencies are obliging governments to look increasingly into both cost recovery and privatization of certain services previously provided by the government. In the field of animal health, privatization of clinical veterinary services may be accompanied by such undesirable changes as a decrease in reporting disease to the animal health authorities, reduced contact and possibly confidence between producer and the government veterinary

officer and reduction in competent veterinary staff available for disease control activities, especially emergency disease responses.

Some countries have developed a cost recovery system for clinical services offered by government veterinary officers. In this way, schemes significantly reducing the salary and vehicle costs of veterinary officers to the government, while maintaining an effective field staff, have been devised. However, there are also some difficulties in this, as some veterinarians are often more interested in clinical work to the detriment of their regulatory duties, particularly if the system permits them to increase their income through clinical work. One way to minimize this is to levy charges for clinical work carried out during "office hours" to the treasury, while fees for "out of hours" work are paid to the veterinary officer.

If it is decided to encourage privatization of animal health services then the following prerequisites need to be considered:

- ***provision of low-cost capital with arrangements for deferred loan repayments, to allow time for the practice to become viable;***
- ***legislation for both legal and ethical control of veterinarians;***
- ***special facilities for importation of drugs and equipment, including vehicles;***
- ***special facilities for provision of credit and, where necessary, foreign exchange;***
- ***increased training in clinical medicine and practice management at both undergraduate and postgraduate levels.***

Control of veterinary products

Veterinary drugs. Pharmaceutical products and feed additives must be controlled because many are potentially dangerous. Each country needs legislation to control the importation, manufacture, distribution and final use of these products. The recommended scope of the legislation is given in Chapter 8, under the heading "Legal powers".

Biologicals. For many diseases, prevention and control programmes depend on the availability of adequate quantities of the required vaccines. For small and poor countries it is often cheaper and easier to purchase good-quality vaccines of guaranteed potency rather than manufacture them.

Before deciding to produce its own vaccines against certain diseases, it is essential that a country should very carefully investigate the costs involved, including the facilities and staff needed and the size of the market. In developing countries there is often a shortage of skilled personnel, media and materials, such as vials, as well as difficulties in maintaining equipment. In addition, the vaccine must be of proven potency and safety and quality control testing is expensive. All these factors have to be taken into account before deciding to set up a vaccine production laboratory.

The government may draw a policy under which some vaccines are issued free, e.g. those for the major epizootic diseases such as rinderpest and foot-and-mouth disease, while charges are made for the others, such as clostridial vaccines. By charging for some vaccines, the government can recover some costs and it will also make the stock owners realize the cost of animal health maintenance.

Inspection

Veterinary inspection. Veterinary inspection is applied within the country and at the borders:

- ***to prevent entry of disease from abroad, to avoid spread inside the country and to ensure that every case of disease is reported immediately to the veterinary authorities so that appropriate control measures can be applied without delay;***

- ***to assist in implementation of control and eradication programmes;***

- ***to ensure compliance with official standards of animal health and quality of animal products for the purposes of internal and external trade.***

These measures should be supported by fully enforced appropriate rules and regulations. When the official veterinary inspection detects new diseases it should be followed up by appropriate action on the basis of the disease control legislation of the country. The relevant standards of health and quality should be designed so as to provide effective:

- ***protection of animal and human health;***
- ***prevention of damage to the health and quality of animals and products;***
- ***prevention of deceptive practices;***
- ***compliance with international commitments.***

The following should be subject to veterinary inspection:

- ***sedentary herds and premises and pastures where those herds are reared or detained temporarily or permanently;***

- ***migrating herds;***

- ***transport of animals, including means of transportation as well as loading and unloading facilities;***

- ***gatherings of animals, particularly markets and fairs;***

- ***animal dealers and related facilities;***

- ***artificial insemination, communal male breeding stock;***

- ***slaughterhouses and butcher, establishments for cutting, processing, transporting and storing meat;***

- ***dairy establishments;***

- ***production of hatching eggs and hatcheries;***

- ***tanneries, knackeries, rendering plants, establishments dealing with unprocessed wool, hair, bristles, feathers and other animal products for industrial purposes, and establishments destined for the processing of such products;***

- ***commercial and industrial establishments for animal feed;***

- ***establishments where waste food is fed to animals;***

- ***use of manure, dung, litter and rough forage outside the farm of origin;***

- ***veterinary pharmacies, commercial and industrial establishments for products destined for the diagnosis, prevention or treatment of animal diseases;***

- ***other trades, skills and professions directly concerned with animals and products.***

Inspection of animals. The inspection of farm animals should be performed in close collaboration with animal health centres and cooperative and private veterinarians in order to be aware of any deterioration of the general health status of the animals, which may then be reliably reported to the official animal health service.

Migrating herds should be controlled at obligatory checkpoints where official veterinary inspection is carried out. These checkpoints should be appropriately equipped to permit a proper inspection. The location of this establishment should suit the needs and convenience of national and international traffic routes and marketing chains.

Gatherings of animals, in particular at markets, auctions and fairs, should be subject to previous authorization and should be inspected by veterinary officers.

The inspection of seasonal grazing and herd migration in frontier areas should be exercised through effective cooperation of the official animal health services of the neighbouring countries concerned. Animals in the restricted frontier area should be regularly and frequently visited.

Official veterinarians should also control export of animals following multilateral commitments in accordance with relevant rules and regulations. Inspection may be undertaken in production areas, in establishments approved for export or on the transport to or at the frontier, always following the procedure established in agreement with the importing country. The animals must be free of all notifiable diseases.

The inspection of live animals before internal movement should be governed by the same principles as the inspection for imported animals, with the exception that quarantine and diagnostic testing may not be required.

The inspection of animals is also required when a suspected case of notifiable disease is reported. The veterinary officer should ascertain the facts on the spot. In areas of extensive production where this visit is not always feasible, the preliminary investigation may be undertaken by a private veterinarian or by an animal health assistant. These measures should include the following stages:

- ***ascertainment of facts at the site of occurrence and establishment of immediate precautionary measures;***
- ***official declaration of "infected place" or "suspected infected place" and related measures recommended;***
- ***epidemiological investigation;***
- ***action to control or eradicate the outbreak;***
- ***official declaration at the end of the outbreak and release from restrictions.***

Inspection of inedible animal products. The inspection of animal products is carried out not only to protect human health, but also to detect and prevent the spread of animal disease. It is important that animal products should not be a source of disease.

Non-edible products such as blood-meal, bone-meal, hides, skins, wool, hair and hooves should either come from sources free from disease or be treated in such a way as to render them safe. Condemned or contaminated abattoir materials should be sterilized in rendering plants. Meat and bone and blood-meal may not be sterile because of inadequate temperatures used during rendering or contamination after rendering. Proper supervision of these processes can prevent this contamination and make them safe for use in animal feeds, etc.

Certain diseases such as foot-and-mouth disease and African swine fever can be transmitted to other animals in such animal products as meat that is perfectly fit for human consumption but is contaminated with the virus. It is therefore very important that precautions are taken by proper inspection and/or treatment to prevent animal products from being a source of infection for animals.

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Protection of human health

Purpose and scope of veterinary public health

Veterinary public health (VPH) is a component of public health activities devoted to the application of veterinary skills, knowledge and resources to the protection and improvement of human health.

In most countries, VPH activities comprise the surveillance, prevention and control of zoonoses, food hygiene and animal-related aspects of the protection and improvement of the environment. Inevitably there are many areas where VPH activities overlap with those of animal health services. This is particularly the case when the two activities are administered by different ministries.

It is important that there is maximum integration if services are to be comprehensive, and full account should be taken of both social and economic factors in the preparation and execution of programmes.

VPH activities

The major activities for VPH in animal production are:

- ***control and eventual eradication of specific zoonoses;***
- ***prevention of occupational hazards and diseases connected with live animals and their products;***
- ***establishment of diagnostic, surveillance and information systems for zoonoses;***

- ***control of animal populations that may serve as disease reservoirs for humans.***

Specific activities in veterinary food hygiene include:

- ***prevention and control of zoonoses and other diseases transmitted by food of animal origin;***
- ***inspection of food premises, their operations and products, including processing, storage and distribution;***
- ***supervision of abattoir hygiene;***
- ***ante-mortem and post-mortem inspection of meat and poultry;***
- ***prevention and control of chemical residues in food, including veterinary drug residues;***
- ***supervision of export and import of food of animal origin from the hygienic viewpoint;***
- ***collaboration with epidemiological services in surveillance, data collection, evaluation and distribution of information;***
- ***participation in investigations into food-poisoning outbreaks.***

Activities connected with the environment include:

- ***control of zoonoses of environmental origin;***
- ***control of vertebrate and invertebrate vectors of zoonoses;***
- ***safe collection and disposal of dead animals, condemned meat and of other animal wastes, and the control of environmental pollution in animal settlements and animal industries;***
- ***preservation of the urban and rural environment by controlling animal populations;***

- ***use of animals to monitor environmental hazards;***

- ***surveillance and control of infections in wildlife and pet animals that are communicable to humans.***

VPH organization

In most countries the VPH unit is part of the Animal Health Service in the Ministry of Agriculture or Livestock, while in a few countries it is located in the Ministry of Health. It is important that, irrespective of its location, it maintains close links with both the animal and human health services.

The VPH unit should be properly provided with professional staff support and equipment. It should be responsible for the planning and preparation of VPH programmes within the country and for the execution of specific programmes, either solely or jointly with other government departments.

VPH in primary health care

Veterinary public health has a fundamental role in primary health care. The establishment of a satisfactory human health status in many countries requires, inter alia, greatly improved control and, if possible, the eradication of zoonoses. Many zoonoses have not only a direct impact on human health, but also cause the loss of large quantities of food. Therefore they are important economically, as well as socially. Improved human-animal-environment relationships are also extremely important for achieving an acceptable state of global health.

Effective control of zoonoses and other VPH problems cannot be achieved without significant primary health care contributions. This requires community education and participation in the prevention and control of zoonoses; in keeping animals healthy and productive; in producing abundant, sound food and in preparing and preserving it properly; in establishing and maintaining correct human-animal relationships; and in protecting the environment so that it does not deteriorate to the disadvantage of humans and animals.

Meat inspection and abattoir hygiene

This is an important veterinary public health function. The veterinarian who has knowledge of animal disease, as well

as training in veterinary public health, is the best person to supervise or carry out this function. In large abattoirs there should be veterinarians to carry out the ante-mortem and post-mortem inspections and supervise the general hygiene of the abattoir. Properly trained meat inspectors should assist the veterinarian in these tasks. Meat inspection, even at the small village slaughtering points, should still be the responsibility of the veterinary authorities. The veterinarian in charge of public health at an abattoir is responsible for:

- ***ensuring that hygienic practices and cleaning are carried out;***
- ***ante-mortem inspection. This is done to prevent the slaughter of diseased animals, to detect diseases such as rabies that would probably not be noticed at post-mortem inspection and to ensure animal welfare;***
- ***post-mortem inspection. This should be done on individual animals. It is essential that all parts of the carcass are correlated so that a balanced judgement can be made. 130th the ante-mortem and post-mortem inspections should follow the methods described in the Codex Alimentarius Code of Practice;***
- ***ensuring that meat passed for human consumption is handled in a hygienic manner;***
- ***ensuring that conditionally passed meat is treated to render it safe for human consumption;***
- ***ensuring condemned and contaminated material is correctly treated to render it safe and not be a hazard to humans or animals;***
- ***the safe disposal of the abattoir wastes;***
- ***implementing the laws governing meat inspection and hygiene.***

Protection of animals

Ensuring humane treatment of animals in general

It is the professional duty of veterinarians to safeguard the welfare of animals at all times. When engaged in field activities the humane treatment of animals should always receive attention, and remedial action should be taken in cases where animals are made to suffer unnecessarily.

Welfare standards in markets, during transport and slaughter

Acceptable standards of welfare are important at markets and during transport in relation to injuries, stocking densities, feeding and watering arrangements, tethering of animals, etc., and should receive attention. Any legislation covering the humane slaughter of animals should be enforced.

Control of laboratory animals

When live animals are used for research or diagnostic purposes, high standards of welfare should be observed and any unnecessary suffering avoided. In countries that have legislation to protect laboratory animals, it should be rigidly enforced.

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Chapter 4: Organization and management

Central directorate

The animal health service should be under the authority of a Chief Veterinary Officer (CVO) who reports to the appropriate minister directly or through established channels.

The CVO has national responsibilities for improving and maintaining the health status of the animal population of the country and participates in the protection of human health through:

- ***proposing government animal health strategies and policies;***
- ***recommending priorities for action, based on surveillance of the animal health situation;***
- ***planning and implementing the various programmes;***
- ***preparing the budget;***
- ***managing personnel and resources;***
- ***evaluating the cost/benefit aspects of the programmes;***
- ***ensuring cooperation between neighbouring countries and national and international organizations;***
- ***establishing intersectoral public health cooperation between human health and veterinary departments and with animal production departments, where they are separate from the animal health service;***

- ***controlling animal reservoirs of human diseases;***

- ***raising public awareness by disseminating general information about diseases and their control.***

The CVO may be assisted by deputies.

The organization of the directorate will vary according to the size and socio-economic status of the countries and the importance of livestock to the national economy. However, within the directorate, the following sections are usually included.

Animal health planning, evaluation and implementation section. This section is responsible for advising the CVO on the planning and evaluation of disease control policies and programmes and also supervises the execution of field programmes. It should include an epidemiology unit responsible for the collection of data and information and the monitoring of the disease situation. It is also responsible for collaboration with neighbouring countries and regional/international organizations. It should have close links with the central and provincial diagnostic laboratories and also supervise the quality, storage and distribution of veterinary vaccines and drugs.

Veterinary public health section. This section is responsible for veterinary public health activities, notably the control of zoonoses, food hygiene (animal products) and animal-related aspects of protection and improvement of the environment.

Training and extension section. This section serves to promote training at all levels, keeping personnel requirements under constant review. It should also be responsible for the promotion of information activities, supporting field extension work and maintaining strong links with institutions on research applicable in the field.

Other technical sections. In some countries the directorate includes other sections, such as animal protection and welfare sections. The role of these sections should be to coordinate the activities of the service in the field of animal protection and serve as advisers in problem cases. They should also work with national and international organizations.

Administrative section. The administrative section should be responsible for all aspects of financial control and personnel management. Where the purchase, storage and distribution of drugs is centralized, a veterinary pharmacy

may be established under the responsibility of the directorate.

In large countries, it may be desirable to subdivide some of the above sections into smaller units with specific tasks.

Field services

Organization and management

In order to execute animal disease control programmes, adequate structures are necessary at the field level. To begin with, there should be a chain of command proceeding from the directorate to the field.

The echelon immediately below the directorate level usually consists of provincial or district officers having adequate professional and technical staff support, as well as diagnostic facilities to meet the demands of the area covered.

Under the provincial or district structure, one of the following systems or a combination thereof is required to bring animal health services as close as possible to animal owners.

Communication plays a very important part in animal disease control programmes. In some developing countries it has been very useful to have a radio communications system between the central directorate, diagnostic laboratories and field personnel for rapid exchange of disease control information.

Animal health offices. Their primary function is to provide preventive veterinary medicine services. In some countries these offices may need to establish clinical facilities, increasingly so in areas where animal productivity and profitability are being enhanced through improvement measures. In such areas, however, there may be a place for privatization of certain field services, which would relieve government services of routine clinical work.

Well-equipped mobile veterinary teams may be established to operate under the animal health office organization to serve more remote parts of the country, especially for the prevention and control of major epidemic diseases.

In a system that has worked well in some countries, the government veterinary staff purchase their own vehicles with a

low-interest loan and receive an allowance for official travel.

Primary animal health care workers. Under nomadic and transhumant animal production systems, a special unit recruited from rural areas and given short-course training in basic animal health care may be assigned to groups or communities of livestock owners to live among them and move with them. Limiting factors of this system are technical restraints, such as cold storage of vaccines and restocking of veterinary products. However, in many developing countries this may be the only way to ensure the permanent presence of animal health care personnel among livestock owners.

Import/export and quarantine control

Protection of the national territory from the introduction of animal diseases is an essential task of any animal health service, which, for this purpose, should have the overall power to control the import of all live animals and products of animal origin.

This requires control facilities along the borders, at seaports and airports, including the provision of quarantine stations where animals can be kept for observation. Similar control facilities are needed for the protection of disease-free zones where they have been established.

The animal health services must also exercise control over exports of live animals and animal products. This subject has been dealt with in detail in Chapter 3.

Distribution of veterinary products and equipment

Veterinary drugs and equipment

The aim is to ensure a steady supply of veterinary drugs and equipment for both the public and the private sectors.

Public sector. At the national level, the animal health service may import, store and distribute essential veterinary

products and equipment. The maintenance of strategic reserve stocks should be assured.

Private sector. Authorized pharmacies and drug depots market approved veterinary drugs following the national regulations for sale and use of these products. The private sector may also market veterinary equipment.

Veterinary vaccines

The majority of veterinary vaccines, particularly those containing live attenuated virus, must be kept constantly cold while in store and during transport to retain their effectiveness.

In the distribution of veterinary vaccines, it may be possible to utilize existing cold chains of the medical services or other services/organizations.

Control of veterinary products

The use of pharmaceutical products and vaccines must be controlled. Each country should have legislation to control the importation, manufacture, storage, distribution and final use of these products. Further details are given in Chapter 8.

Wherever practical, control procedures should be conducted in the country using the product. However, as many countries do not have the facilities to check all the registration information and to run further trials on the drugs and vaccines, they should only accept that products have been registered in a country with a reliable registration system. This should suffice as long as the same conditions of use are applied.

Ideally there should be a laboratory that can carry out quality checks in the country. This facility is expensive and few developing countries have such a laboratory. In countries where this facility does not exist, periodic samples should be sent to an independent laboratory for quality testing. The same registration rules and checks should apply to products manufactured within the country as well as to imported products.

Veterinary laboratories

Diagnostic facilities

An efficient animal disease diagnostic organization is needed to support the various activities of the animal health services, both for the state service and for the private sector.

All veterinarians in the field should be equipped to collect specimens from live animals suspected of being diseased, or at post-mortem examination, and to dispatch them to the provincial or central diagnostic laboratory.

Each country needs a well-equipped central diagnostic laboratory for the diagnosis of major animal diseases. Depending on the livestock population and the efficiency of the communication system, satellite laboratories may be established and may be specialized in their scope according to the priorities of the area.

Central diagnostic laboratory. The prime function of the central diagnostic laboratory is to provide field veterinarians with specialized services. It may also be required to investigate identified disease problems in depth in order to assist the government in defining proper control strategies.

The central diagnostic laboratory should have technical links with FAO, WHO and OIE International Reference Laboratories and Collaborating Centres and other diagnostic laboratories in the region in order to obtain confirmation of diagnosis of diseases for which it does not have sufficient experience or technical capability. It should be subdivided into sections covering the major disciplines.

While much of the basic research on animal diseases is carried out in specialized laboratories in developed countries, central diagnostic laboratories in developing countries may have an important role in specific research activities aimed at applying new findings to local situations. These include:

- ***the development of diagnostic procedures and control techniques adapted to the countries' conditions;***
- ***the protection of the environment (environment pollution, water contamination, disease vectors and urban and rural animal population control).***

Provincial diagnostic laboratories. Smaller laboratories should be established at the provincial level to carry out

diagnostic procedures that do not require sophisticated equipment and specialized personnel.

Close cooperation between central and provincial laboratories is necessary for the success of animal health programmes. Financially and administratively, the provincial laboratories should be under the provincial veterinary authority. Technically and scientifically, they should come under the authority of the central laboratory.

Vaccine production laboratories

As stated in Chapter 3, under the heading "Control of veterinary products", before a decision is made as to whether a country should produce its own vaccines against animal diseases, it is essential that a very careful investigation be made into the costs involved and that the anticipated demand be ascertained. In general, vaccines against bacterial diseases can be prepared in large quantities with relatively simple equipment, while viral vaccines require sophisticated apparatus and tissue culture facilities in many cases.

Vaccine production laboratories must be housed in isolated areas where no animals are allowed in close proximity. All effluent from laboratories must be decontaminated before release and all waste material incinerated.

Certain activities in the production of vaccine may be centralized for greater efficiency, e.g. preparation of media, sterilization and decontamination of equipment.

Model organograms

Model organograms, giving a suggested basic orientative structure for animal health services, are provided in Annexes 1A and 1B. They should be adapted to take account of the situations in different countries.

Bibliography

Acha, P.N. 1987. A strategy for veterinary services to meet the requirements of a changing world. Rev. Sci. Tech. Off. Int. Epiz., 6(4): 925-945.

Acha, P.N. & Szyfres, B. 1987. Zoonoses and communicable diseases common to man and animals. 2nd ed. Pan-American Health Organization. Washington, D.C., WHO.

Blajan, L., Gee, R.W. & Gimeno, E.J. 1987. Organization of veterinary services for the future. Rev. Sci. Tech. Off Int. Epiz., 6(4): 899-910.

Centre for Tropical Veterinary Medicine. 1980. Handbook of tropical veterinary medicine diagnosis. Midlothian, UK, CTVM.

Cheneau, Y. 1984. Towards new structures for the development of animal husbandry in Africa south of the Sahara. Rev. Sci. Tech. off. Int. Epiz., 3(3): 621-627.

Cheneau, Y. 1985. The organization of veterinary services in Africa. Rev. Sci. Tech. Off. Int. Epiz., 5(1): 107-154.

EDI-BIRD-OIE. 1987. Seminar on animal health services in Africa. Rev. Sci. Tech. Off. Int. Epiz., 6(4): 1085-1094.

Gee, R.W. 1973. Animal quarantine stations. Wld Anim. Rev., 8:17-23.

Griffiths, R.B. & Königshofer, H.O. 1974. Standard of veterinary services. Rome, FAO.

ISS/WHO/FAO-CC/IZST. 1990. Guiding principles for planning, organization and management of veterinary public health programmes. Veterinary Public Health Report, 90.11: WHO/FAO collaborating centre for research and training in veterinary public health, Istituto Superiore di Sanità, Rome.

Ministry of Agriculture, Fisheries and Food. 1978. Manual of veterinary investigation laboratory techniques, Second ed. UK.

WHO. 1975. The veterinary contribution to public health practice. Report of a Joint FAO/WHO Expert Committee on Veterinary Public Health. WHO Technical Report Series No. 573.

WHO. 1978. Proc. WHO Expert Consultation on some veterinary public health problems, Rome, 1977. Annali Istituto

Superiore di Sanità, 14: 1-410.

WHO. 1979. Parasitic zoonoses. Report of a WHO Expert Committee with the participation of FAO. WHO Technical Report Series No. 637.

WHO. 1982. Bacterial and viral zoonoses. Report of a WHO Expert Committee with the participation of FAO. WHO Technical Report Series No. 682.

WHO. 1984. Expert Committee on Rabies. Seventh report. WHO Technical Report Series No. 709.

WHO. 1985. Guidelines on the hygienic disposal and rendering of dead animals and animal wastes to protect human and animal health.

WHO. 1986. Joint FAO/WHO Expert Committee on Brucellosis. Sixth report. WHO Technical Report Series No. 740.

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Chapter 5: Human resources

Personnel planning

Animal health personnel planning, education and training is of the utmost importance to any animal health service.

An adequate supply of well-trained and experienced personnel is a key requirement for an effective animal health service. In some developing countries, but not in all, there is a shortage of qualified veterinarians and support staff, thus creating a major obstacle to the animal health programmes, acceleration of livestock development and improvement of animal production.

Personnel needs are a broad, ranging from professional veterinarians at national, provincial and district offices and laboratories through to field veterinarians, animal health assistants and support staff.

Within a well-established animal health service, various grades of professional and technical personnel are required. They include:

- ***veterinarians;***
- ***other professional personnel, including economists, entomologists, helminthologists and microbiologists;***
- ***animal health assistants;***
- ***laboratory technicians;***
- ***food inspectors (for animal products);***
- ***vaccinators;***
- ***artificial inseminators;***
- ***other auxiliaries, including stock inspectors and dip attendants;***
- ***administrative, general services personnel.***

Many criteria have been recommended as bases for assessing the number of personnel required. The major considerations include: the stage of development of the animal industry; the animal disease position; the size of flocks and herds; the use of animals for agricultural work and transport; the standard of living of the human population; the part played by veterinarians in animal husbandry; the use made of auxiliary personnel; the extent of veterinary

involvement with companion animals; and the use of byproducts. The important aspects concerning the whole field of veterinary public health aimed at safeguarding humans from health hazards through animals (zoonoses control, food hygiene, etc.) should also be taken into account when assessing the requirements for animal health personnel.

The personnel needs, as well as the financial and material resources of each country, should determine the number and levels of training institutions required. The demand for trained research personnel depends on the scope and extent of planned research activities.

Status of animal health personnel

Veterinarians

A veterinarian is a person who has graduated from a university-level veterinary school.

Government veterinary officers should be civil servants. Their rights and privileges should be equal to those of other professional civil servants with equivalent educational backgrounds.

All veterinarians should be subject to the jurisdiction of an independent veterinary council/board with the powers to implement standards of training, professional competence and ethical standards.

Professionals other than veterinarians

Professional scientists other than veterinarians may be employed by the official animal health service for specific tasks, provided that such professionals neither exercise the functions of veterinary officers nor supervise the exercise of such functions.

Animal health assistants, laboratory technicians and meat inspectors

These people may be employed by the official animal health service for auxiliary functions, under the direct supervision of a veterinary officer. They should be staff members of the official veterinary service, at the subprofessional level, and

should be granted the rights and privileges of other civil servants of comparable education and responsibility. They should undergo formal training in their respective tasks which, in the case of animal health assistants, should be for a minimum period of two years.

Private veterinarians

Private veterinary surgeons may be engaged in certain official duties. In the exercise of such duties they should be subject to civil service discipline, under the authority of the CVO. Such arrangements can be made:

- ***in apart-lime capacity, but paid by the government, for specific functions in the framework of systematic surveys, eradication programmes or vaccination campaigns, meat inspection, dairy inspection and similar official veterinary inspection activities;***

- ***under professional status, for purposes where functions of public interest cannot be separated from the exercise of veterinary practice, such as reporting of notifiable disease outbreaks and cooperation in general animal disease surveillance.***

Auxiliary personnel

This term generally refers to stock inspectors, vaccinators and inseminators. These workers are very important as support staff to veterinarians. It is always necessary, however, to know exactly what is expected of the livestock industry before the veterinary services can plan their programmes of action and organize and utilize such auxiliary personnel to the utmost capacity.

With the increasing diversity of work to be performed and recognition that well-trained auxiliary personnel could relieve significantly the veterinarian's workload, more formal instruction has been introduced in the form of full-time training courses. Today, in most developing countries where an economic interest in livestock exists, there are well-established training centres.

Other auxiliary personnel

Depending on the size of the animal health service, there should be an auditor or a team of auditors within the central directorate or the ministry.

Administrative personnel

No country can organize a satisfactory animal health service without the support of qualified administrative personnel and other general service staff.

The size of the administrative unit and the diversity of its functions and duties must be directly related to the importance of the country's livestock industry and to the size and functions of the animal health service.

Education and training

Since the main function of education and training is to provide animal health staff in the numbers and of the quality required to meet national demand, an assessment of these requirements is essential to plan education programmes and to identify the number and types of training institutions required.

Veterinarians

Serious attention should be paid to the implementation of educational programmes for veterinarians. Postgraduate training and continuing professional development have been neglected in some countries. Postgraduate courses should be established where possible and fellowships should be provided to support overseas training in specialized areas. International cooperation should be encouraged by fully utilizing existing regional and global educational and training facilities.

Close cooperation between the official veterinary services and veterinary schools should be established.

To ensure the competence of professional officers to meet increasing managerial responsibilities during the course of their careers, appropriate management courses should be made available through government training facilities.

Scientific and technical staff

Increased scientific and technical cooperation between countries should be encouraged to allow for the sharing of experience and advances made on subjects of common interest.

Developing countries already possessing qualified personnel and sufficient facilities should be encouraged to initiate training courses at postgraduate level. Such courses would increase the countries' capacities to generate new technologies for the improvement of local animal health and production.

Most technicians working in universities, research institutes, private laboratories and industries come from medium-level schools and their number should be as much as two to three times that of scientists. Training facilities and courses for technicians essential if scientists are to produce to their full capacity.

Animal health assistants

Trained animal health assistants, laboratory technicians and meat inspectors are extremely useful in carrying out much of the routine work, leaving the veterinarians more time to devote to the more skilled duties. These auxiliary staff should have formal training as well as practical experience.

Formal training of animal health assistants should consist of a minimum two-year course, which should be a recognized part of the post-secondary educational system of the country. Veterinary laboratory technicians and food inspectors should be recruited from among the animal health assistants and receive specialized training. Stock inspectors, vaccinators and inseminators in most circumstances attend only short courses and receive in-service training from their senior colleagues or from veterinarians responsible for the animal health services.

In some remote districts, and particularly in some nomadic grazing areas, it may be difficult for people to reach the educational level required to enter a formal animal health assistants course. However, these people may be given short-course training like primary animal health care workers as discussed in Chapter 4.

Bibliography

CTA/GTZ/IEMVT. 1984. Actes du séminaire sur une structure de santé animale de base. Le rôle des auxiliaires d'élevage en Afrique.

CTA/GTZ/ODA. 1985. Primary animal health care in Africa. Blantyre, Malawi.

FAO/WHO. 1978. Expert Panel on Veterinary Education. Fourth meeting. Uppsala, Sweden.

FAO. 1983. Manual for Animal Health Auxiliary Personnel.

FAO. 1984. Expert Consultation on Veterinary Education in Africa. Nairobi, Kenya.

FAO/WHO. 1971. Expert Panel on Veterinary Education. Third meeting. Rome.

FAO/WHO. 1973. World Directory of Veterinary Schools. Geneva, WHO.

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Chapter 6: Planning: financial management and evaluation

Planning

Planning should be a continuous process that establishes policy, strategies and priorities of the animal health service in relation to the needs of the community served. These needs vary not only from country to country according to the nature and economic importance of animal industries and the present disease situation, but also in response to such factors as trade, real or perceived threat of exotic diseases, environmental and other factors (see also Chapter 7, "Animal disease emergency planning").

Animal health services planning

To facilitate a strong animal health administration, it is crucial that the CVO have long and wide experience and strong managerial capabilities.

The respective managers, both at head office and at the provincial or district level, should have skills and management training over and above the technical animal health functions (financial management, personnel management, project formulation and implementation, etc.).

To help the other headquarters sections undertaking animal health activities, a separate section needs to be created to deal with data processing, statistical analysis and economic evaluation of projects, as well as the preparation, execution, monitoring and evaluation of the animal health activities.

If the animal health services are to get an adequate portion of the national budget they must convince national decision-makers of the importance of the animal health services to the well-being of the country and its economy. As large proportions of the populations of the developing countries are dependent on the livestock industry, their governments should give an adequate proportion of the national budget to the animal health services to control animal diseases and increase their productivity.

When the budget is discussed with the relevant government body, the importance of animal health services must be emphasized. In particular, the following points should be considered:

- ***the value of the livestock industry in the overall economy, its export earnings and role in the social structure of the country;***

- ***disasters that may result should a major animal disease occur and spread, seriously affecting the whole livestock industry;***

- ***problems that zoonotic diseases will cause in the human population if they are not controlled;***

- ***the effect of reduced operations on the export of animals and animal products;***

- ***lowered production as a result of chronic and enzootic diseases if advisory services and control measures are reduced or absent; beneficial and positive effects of animal health programmes and services.***

Arguments to support or justify these assertions should be based on sound information with regard to:

- ***general government policy, both short- and long-term, especially in relation to individual animal industries. Some governments put high priority on strengthening the beef industry as a means of stimulating exports and associated earnings of hard currency, for example, while others may emphasize the importance of the dairy industry to stimulate milk production for local consumption;***

- ***the socio-economic importance of the different animal industries;***

- ***size and distribution within the country of different animal populations;***

- ***the human population, its distribution and dependence on animals for food, fibre, transport, draught-power, etc.;***

- ***the type of service demanded by the producers as necessary for the animal industry;***

- ***animal diseases present in the country and an assessment of their socioeconomic and public health importance to the individual and the country as a whole;***

- ***exotic animal diseases threatening the livestock population and the animal industries;***

- ***examples of past success stories, including those from other countries with similar situations and conditions.***

Based on the consideration of these and other factors, the major lines of the animal health policy objectives should be developed and detailed strategies suggested in order to attain these objectives. Careful consideration should also be given to inputs (infrastructure requirements, personnel and training, organizational structures and division of responsibilities, etc.) required to attain these objectives.

Other government entities and non-government bodies that may be involved in or related to the planning or implementation of the animal health service should be clearly identified and sound working links should be established:

- ***to determine industry needs and to maintain their active support, producer and animal industry associations being most important;***

- ***with the agricultural economics/statistics service or unit to obtain accurate statistical data not available within the animal health service;***

- ***with veterinary schools to develop trained personnel;***

- ***with the human health services for better control of zoonotic diseases;***

- ***for support during eradication or emergency operations the collaboration of different sectors may be needed (see Chapter 7).***

Programme planning

Programme planning covers the regular planning of all routine activities of the animal health service to achieve its major objectives. This planning, which is usually done on an annual basis, follows a fixed pattern determined by the objectives and management structure designed to achieve those objectives. To ensure that no aspect is overlooked, this process is usually initiated at the lowest level (units or subunits) of the organizational structure, then consolidated at

the next level up, and so on, until it arrives at the top. For the field service, for example, the process may start at district level, proceed through provincial and departmental levels and ultimately arrive at the responsible office in the National Animal Health Service Directorate. This office its proper balance and conformity with policy decisions before passing it on to the CVO of the animal health services. The CVO usually consolidates the planning documents from each of the different sections before approving the whole and submitting it to the appropriate central planning and/or treasury body of the government for consideration within the context of the overall national plan.

It is important that great attention is paid to detail and that the documentation is concise and easy to read and understand by non-veterinary senior staff. It is difficult to approve a programme if it is not clearly and concisely presented, and its justification should leave no room for doubt about its importance. The animal health services proposal is only one of a long list of proposals being submitted for funding. Not only does it have to compete with proposals from other departments within the Ministry of Agriculture, but also with proposals from other government departments, which, for one reason or another, may receive better support from the central planners.

Project planning

Over and above the routine day-to-day activities of the department/division/section, there are activities that are usually "one-off" and have a discrete time frame. These are frequently planned outside the normal planning schedule and may rely for some or all of their funding on non-government sources. Such an activity may be the eradication of a disease, the construction of a laboratory for the field service or the carrying out of a specific serological survey. These may be part of the long-term plan but require separate planning and budgeting or they may arise out of ongoing work and have no previous mention in the departmental plan.

These projects need to have separate justification, objectives, outputs, inputs and budgets. Examples would include:

- ***eradication of a disease;***
- ***establishment of a new laboratory;***
- ***determining the incidence of a specific disease of economic importance;***
- ***establishing a disease-free zone to support a new export opportunity.***

So far as these projects arise out of the planned activities of established sections or units, they can usually be partly absorbed in terms of personnel and budget within existing arrangements. However, careful well-documented planning is essential to identify additional requirements, define new responsibilities and establish the necessary communications with other units, either within or outside the animal health service.

Finance

Budget

Based on the planning process discussed above, the directorate of animal health services has identified its work plan both for the long term and the short term. This has identified the work (routine, project) to be done and the input necessary to carry out the work plan. The financial implications must then be calculated and sources of funding identified.

The major source of funding is the government, which has the final responsibility for all funds even though some may come from sources other than the regular national budget. The following paragraphs deal, first, with the budgeting process as a regular programme operation, second, with the special budgets for projects and emergencies and, finally, with sources of funds.

Programme budgeting. The budget covers the normal expenses of running the animal health services and usually covers one financial year. It takes a set form in which the items of expenditure or budget lines are clearly itemized for each section/unit/activity/project included in the service's work plan. The format of the budget is standard from year to year and conforms to the norms established for all government departments.

The estimates for funds required to run the animal health services should be prepared well in advance of the beginning of the financial year in question. As indicated above, it starts at the lowest administrative level and is progressively consolidated until it is finally presented as one document to the ministry for inclusion in its consolidated budget, which in turn is part of the national budget.

The budget proposals must be accurately calculated and well-balanced. Requests for money must be backed up with sound justification and other supporting documentation.

Once the budget has been approved and the money allocated, care must be taken by the director and financial staff to ensure that spending remains within the limits of the funds allocated. Similarly the treasury should not cut funds that have been allocated to the department during the fiscal year, resulting in programmes not achieving their targets.

A typical recurrent budget should contain the following sections, often called votes, items or budget lines.

Salaries and allowances section. This section of the budget covers the salaries and allowances of all permanent workers in the service. There should be an agreed staff establishment, i.e. the maximum number of people who may be employed and for whom adequate operational funding is made. This is further broken down into numbers in the various grades, such as veterinary officers, meat inspectors, animal health assistants, etc. With careful calculation a reasonably accurate estimate of funds required for salaries can be made. It is very important that this agreed level of staffing should not be exceeded, otherwise severe funding problems will arise.

Operating section. All too often this section of the overall budget does not keep up with increases in staff levels and inflation. When funds are inadequate, governments find it extremely difficult to cut existing staff levels and so the cuts are made in the operating budget. Since less work can be done, people can be found sitting in offices, willing to work, but without the facilities to do so. In the animal health service, where most of the work involves contact with animal owners and their animal health problems, the operating budget should be comparable to the salary vote. In a number of developing countries salaries account for more than 90 percent of the total budget, leaving less than 10 percent for operations, which is totally inadequate. It is better to have fewer staff who can go out and operate adequately, rather than a large but office-bound staff.

The operating budget section should be split into various votes. It is better to have a few broadly based votes than many very specific ones, as this allows easier transfer of funds from one item to another.

The operating budget should be divided into at least the following:

• Transport. It is essential that adequate funds be provided to allow staff to travel, otherwise they will have to remain in their offices rarely respond to calls. Proper veterinary controls cannot be implemented if there is inadequate transport. When making the budget proposals, estimates should be made giving the number and types of vehicles required, as well as the reasons why they are needed. An estimate should be made of the distance needed to be covered by each vehicle to carry out the allotted tasks adequately and adequate funds to cover these costs should be provided. Provision should be made for insurance, maintenance, running and replacement costs.

• Subsistence or daily allowance. Staff travelling away from home stations on duty should be paid an allowance to cover the costs involved. All staff who travel should be paid their daily allowances for all authorized journeys in advance and not just when money is available.

• Office and miscellaneous. This vote should cover costs of running the various offices and buildings, post and telephones, furniture, printing and stationery. Any advisory leaflets could come out of this vote.

• Drugs and vaccines. In some countries all drugs and vaccines are purchased and distributed by the state. This puts a heavy burden on its finances. If adequate supplies are to be obtained and distributed, the government should supply vaccines for selected diseases of major national importance either free of charge or at a subsidized price. Such diseases, if not controlled, will have far-reaching effects on the livestock industries and, in some cases, on human health as well as the prosperity of the livestock owner. The livestock owner should pay for vaccinations and drugs for treatment of other diseases. These vaccines and drugs can be sold by the private sector. If this is to be done there should be proper registration of the products and evaluation of their quality and safety. Only products of high quality should be registered and used. These products can be distributed through registered veterinary or public health pharmacies.

In many developing countries the rural districts are not covered by pharmacies. In this case the animal health services should assist the livestock owner by selling drugs at reasonable prices. The profit made from the sale of drugs should be paid in to a revolving fund so that there are sufficient available to purchase further stocks. If money goes into the state's consolidated revenue, it is often difficult to get sufficient funds back from the government to purchase additional supplies of drugs.

• Equipment. Funds should be made available to purchase new equipment and, as appropriate, to replace old in order to keep the service functioning. This equipment should include all the very basic items of equipment required for field-work.

• Laboratories and research. This vote would be used to cover the cost of running the laboratory services in the country and can be linked to or separated from the research sector, depending on the size of the laboratory and research institutes.

• Vaccine laboratories. When a government operates a vaccine production laboratory, its budget should be separate from the rest of the animal health services votes. To make the government appreciate the cost of making vaccines and their qualitative value, vaccines produced should be "sold" to the control services. Even if this "sale" is merely a paper transfer from one budget to the other, it makes everyone appreciate the value of the vaccine. The laboratory should control production to meet the demand. Personnel in the field will in turn take better care of the vaccine. The laboratory, by having an "income", will have more chance of getting adequate funds and function as a "self-sustaining unit".

• Training. This item should, where applicable, cover the cost of training auxiliary staff, in-service training and farmer training.

• Other votes. There will be other votes within the budget, depending on the country and the circumstances. These may include: furniture, office equipment and stationery; quarantine stations; and compensation for animals destroyed in disease eradication.

It is essential that all estimates are calculated accurately and realistic requests for funds made.

Capital and development budget. This budget, sometimes called the investment or development budget, covers the cost of capital items. The definition capital items will vary slightly from country to country, but it generally includes items of a permanent or semi-permanent nature and not just the day-to-day running expenditure. This budget would cover the requirements for such items as: new buildings (offices, laboratories, housing for staff, etc.); disease-control fixtures, such as fences, dip tanks and inoculation races; quarantine stations and camps; training centres; vehicles; and equipment

with a relatively long life, e.g. microscopes, incubators, refrigerators and other non-expendable equipment.

Items such as vehicles and equipment with a relatively long life may be considered as part of the operating budget in some countries.

The capital budget normally extends for more than one fiscal year, as happens with the ordinary or operating budget. This is because buildings and most items of a capital nature take more than one fiscal year to complete. It is important that expenditure is strictly controlled to ensure that work or purchases are kept within the allocated funds.

Project funds. In many developing countries donor-aided projects are an important source of finance and equipment for the animal health services. These funds are given for a specific project. The method of allocation of these funds will vary between donor and recipient country and even between projects.

It is better if an agreement (memorandum of understanding) is reached between the donor and recipient department so that payment can be made directly. All payments, whatever the system, must be subject to audit both by the donor and the official government auditor. It is important that proper expenditure control be kept on all donor funds. Donors have high standards of accountability at home and expect to have the same standard of accountability in aid projects.

Emergency funding. Budgeting for emergencies is difficult in most countries because of the uncertainty in the timing, type and nature of any emergency that may arise. The following procedure can be used.

- ***It should be assumed that animal health emergencies will occur. Therefore, there should be provision in the annual budget to allow the department to cope with the average emergencies. This may take the form of budgeting for short-term veterinary staff or transport facilities, drugs, vaccines, etc. Experience of recent years will indicate what type and quantity of inputs may be required for the average emergency.***

- ***In exceptional circumstances, the animal health service may be faced with an emergency situation that cannot be funded as above. For example, dramatic losses due to the introduction and rapid spread of a fatal disease (such as rinderpest) may demand inputs (staff, transport, vaccines, etc.) that exceed normal requirements. The only way to meet this is a special vote and the department should be able to request***

support at short notice. To succeed, such a situation should be foreseen and agreement reached in advance on the conditions under which substantial emergency funds can be released by the treasury. In some countries, such emergencies may fall under the control of a national disasters/emergency unit for funding.

- *Use regular programme budget, reducing or cancelling some animal health programmes or activities.*

Other sources of support. While the main source of financial support for animal health services is the government, it is not the only one. It is important to explore all avenues of funding. Frequently, funds are available from various national and international sources and these should be utilized as opportunities arise.

National sources other than government. These sources include:

- *national agricultural and commercial banks, either directly to individuals or to cooperatives;*
- *some aspects of the department work may be suitable for privatization. Herd health programmes and treatment of farm and companion animals could be done by private veterinarians if the livestock industry is economically viable;*
- *philanthropic institutions may support specific issues/projects;*
- *individual livestock industries may fund (or co-fund) specific research or disease control/eradication programmes;*
- *different cost recovery schemes (see the section "Cost recovery and its financial control" in this chapter);*
- *contract research for industry.*

International sources. These sources include:

- *international agencies, such as the United Nations Development Programme (UNDP), FAO, WHO, the United Nations Industrial Development Organization (UNIDO), the World Bank and the United Nations Capital*

Development Fund (UNCDF), may provide grants, investment (buildings) or loan funds to support specific projects or programmes. Each agency has its own specific conditions for supporting projects and the local office of the funding organization should be contacted for information;

• bilateral donors, usually national aid agencies of developed countries, also offer similar direct support for projects and programmes in individual countries, regions or subregions. Again, each agency has specific conditions and specific national or regional preference for support of this type;

• certain non-government organizations, which may have a national or international funding base, make funds available for animal health projects or programmes.

Financial control

Financial control procedures are usually standard for the whole government. However, tight financial control is necessary and should include the following measures.

Accounting. If budgets are to be meaningful they should be very carefully delivered and controlled. Even if the government has not allocated what are considered to be sufficient funds, the cost of running the animal health services must remain within that allocation. Only when there is an exceptional outbreak of a major disease are there grounds for going back to treasury and asking for additional funds.

In dealing with government funds, strict accounting and reconciliation of spending must be done. Misuse of such funds should not be tolerated.

In order to keep control of expenditure, the CVO should meet frequently with the accounts section. These meetings should be held at least once a month to review the spending to date, which should include committed expenditure, and ensure that there will be sufficient funds to complete the financial year.

If it appears that one vote is going to be overspent, timely application should be made to the treasury or other competent authority to transfer funds from a vote with surplus funds so that the shortfall is made up. This system of having to get permission from the appropriate authority for transfer of funds appears irksome, but it is necessary. When

money was allocated in the first instance, it was given to be spent in a particular manner. For example, money allocated for the purchase of vaccines should not be used to purchase office furniture, no matter how desirable this may be.

Auditing. The departmental account should be regularly audited by an approved agency of the government.

Internal auditors. Internal auditors should visit every animal health office at least once a year, and while there they should check:

- *all monies collected, including cost recovery items, and ensure that proper banking procedures are carried out;*
- *stocks of drugs and vaccines and ensure that they tally with inventories;*
- *security items, receipt books, requisition books, etc.;*
- *movable assets, i.e. ensure that all the equipment on charge to the station is in fact there;*
- *general running of the office, and ensure that all the necessary financial and administrative instructions are being carried out;*
- *the financial administration of donor-aided projects, ensuring that correct financial controls are being implemented and all materials and equipment are properly accounted for;*
- *any other relevant items, e.g. livestock on charge to the office.*

The internal auditor should not only check that the accounts and asset control measures are being implemented correctly, they should assist the staff by teaching them accounting procedures and controls. The internal auditors, during their auditing visits, should look at the methods of financial and inventory control and, if necessary, make recommendations to the head of the department on ways to improve the system.

External auditors. The central government usually has an audit department that controls all government revenue and

expenditure. It is essential that proper auditing of all offices takes place at regular intervals to ensure that proper financial control is being implemented. With regular auditing, any deviation from accepted accounting procedures will be detected early and corrected before major errors are made or funds misappropriated.

Cost recovery and its financial control

There are increasing pressures for individual units not only to be more cost-effective but also to be more self-sufficient in generating their own sources of funds. This means that the animal health services of many countries are being forced or encouraged to find ways of generating income to meet at least some of the expenses incurred by the services. The funds so raised should be placed in a livestock development fund and used to support livestock services. This "cost recovery" takes various forms, for example:

- ***charging for certain services (laboratory diagnostic tests, dip fees for tick control, consultancy services, etc.);***
- ***establishment of revolving funds for certain specified purposes (purchase and supply of drugs, purchase and disposal of experimental animals, production and supply of vaccines, etc.);***
- ***an insurance premium or levy per animal may be gathered from individuals or cooperatives;***
- ***a levy may be charged on imports of subsidized animal products;***
- ***charges for issuing certificates for the import and export of animals and animal products.***

These and other devices for generating income for the veterinary services can be used effectively to get more return from the heavy investments the government has made in infrastructure and make it much more cost-effective. However, if the full benefit is to be derived from this type of initiative, care should be taken from the outset to make suitable arrangements for the appropriate handling of the funds generated and proper accounting of their use. A satisfactory way has proved to be the establishment of a special bank account to receive the funds, with strict regulations on the purposes for which the funds can be used and by whom. It is imperative that strict accounting and audit procedures be insisted on. Another way is for the funds generated to be put back into consolidated revenue. Frequently, if this is done, it is either impossible for the animal health service to have access to the funds or the procedures are so cumbersome

that there is little incentive to apply the method.

Data processing

Records are essential whenever money is handled. Proper accounting and auditing methods should always be applied. To keep these records with the minimum of human error, and to allow the rapid and easy generation of statistical and other types of reports and/or analysis of current and past years' budgets and expenditures, modern accounting systems should be used wherever possible.

Evaluation

Sound technical and/or financial planning must be based on detailed technical and financial records and regular evaluation of the achievements of the animal health services. Such evaluations should assess not only the economic implications of animal health services for the community, but also any biological, social, public health and environmental impacts.

These assessments should be made at farm, animal health service and state levels.

Economic evaluation

Benefit/cost analysis should be treated as only one part of effective animal health planning and management. Simple comparisons of benefits and costs may be made with available data to obtain some idea of priorities in disease control, but results could be unreliable. Comprehensive economic and social analysis capabilities need to be developed in each country, and evaluation should cover problems of depressed animal productivity and subclinical disease, as well as specific infectious diseases. Other forms of economic analysis, such as cost-effectiveness, cost utility and consumer and producer surplus analysis, should also be considered.

Benefits need to be separated in to:

- ***the avoidance of direct observable "losses";***

- *"benefits not obtained", in the form of unrealized potentials for the improvement of animal productivity;*

- *direct benefits, such as gains in agricultural production, animal draught power, exports and import substitution;*

- *"unquantifiable benefits", including improved human health, welfare and prosperity.*

An evaluation of an animal health programme requires a logical procedure that should comprise:

- *rough estimates of the extent and impact of each problem under consideration, using existing data for preliminary assessment of priorities;*

- *population and herd/flock structure data, together with existing evidence of specific disease incidence/prevalence and production losses and, where necessary, the conduct of statistically designed cross-sectional or case-control studies to fill gaps in the information required;*

- *conceptual or diagrammatic models to illustrate the epidemiological characteristics and impact of the problem under consideration;*

- *biological models in mathematical form to estimate risks and extent of problems with and without control and to quantify and value the direct impact on animal production. Indirect benefits should also be incorporated;*

- *systematic quantification for each type of production "unit" - herd, flock or population grouping - of estimated gains in production achievable and control costs for each control or production scheme undertaken or proposed, using static or dynamic models to show cumulative results wherever feasible;*

- *the conduct of a "partial budget analysis" to ascertain the ratio of benefits to costs for individual farmers, which will influence their willingness to undertake and share the costs of health-control activities;*

- *the conduct of benefit/cost analysis so as to be able to compare, from the animal industry's and nation's*

points of view, returns to costs from health-control activity, having made appropriate price adjustments for such issues as import substitution, exports, subsidies and "opportunity costs" of resources. Within these evaluations, thorough "sensitivity analyses" should be undertaken to reveal the effect of errors in data and assumptions and possible variations in prices;

• the use of decision analysis, and particularly "decision trees", to reflect the impact of different decisions at key stages in the progress of a programme;

•a review of political, social, public health and environmental considerations, which can be quantified within the economic analysis in some cases or otherwise rated according to their importance in the course of discussions.

Political, social, public health and environmental impact

The impact of animal health services on these topics would include:

• improved income employment opportunities and living conditions contributing to social and political stabilities;

• reduction or elimination of the impact of zoonoses on humans;

• the contribution to better working conditions and the decrease in medical expenses incurred in the treatment of zoonoses;

• the qualitative and quantitative improvement in human nutrition;

• awareness that, although improvements in delivery of animal health services may have an impact on numbers and productivity of livestock, the full benefits of these improvements will only be achieved if the veterinary inputs are associated with better marketing and pricing of animal products;

• although the application of veterinary drugs, hormones, pesticides, etc., when used according to

manufacturers' recommendations, do not lead to unacceptable toxicological contamination of the environment, care must be exercised by the animal health services to ensure that such products are properly used. Recommendations on this aspect are contained in the FAO/WHO Guidelines for pesticide use.

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Chapter 7: Animal disease emergency planning

The appearance of a potentially disastrous animal disease in a country or region, or even suspicion of the existence of such a disease, constitutes a disease emergency. This applies to any animal disease that presents a sudden and major threat to food production or public health and for which the country's existing resources are inadequate. The epidemiological characteristics of the disease may indicate that it is new to the country or that an enzootic organism has increased in virulence. Communicable disease control implies cooperation between neighbouring countries. When communication is not possible, this may in itself create an emergency situation. Emergency assistance may also be

required in such situations as flooding and other natural disasters or contamination by toxic or radioactive materials.

The national animal disease emergency plan

The mounting of a major emergency disease control campaign is a complex logistical operation that requires the very rapid and effective mobilization of resources and the moulding together of a large group of professional and technical persons of very diverse disciplines and affiliations into a cohesive force. For these reasons, a great deal of forethought and planning is necessary to develop a national animal disease emergency plan, which past experience shows is best done through the task force approach. The highest level of government support should be sought in order to ensure the continuity and longevity of such an approach.

Each country has different animal health situations and conditions and different grades of epidemiological risks. Therefore, preliminary work should identify those diseases which a given country would consider as severely damaging to its animal population. An organizational structure to enact statutes and provide directives necessary to accomplish the objectives should be developed. Locally available financial resources to support this approach should be determined.

The plan should first identify the government departments and agencies that may provide assistance should an animal disease emergency occur and clearly define the roles that they may be expected to play. The Ministry of Agriculture (or its equivalent) should always be the leading agency and the CVO should have overall responsibility for the execution of any emergency disease control campaign. Several other agencies should be requested to provide specialized support as required. These may include: the Cabinet Office (for high-level political coordination); Ministry of Finance (financial coordination); Ministry of Defence (logistical support, transport, communications, field operations support, etc.); Ministry of Home Affairs (quarantine and movement controls); Ministry of Health (zoonoses control); Ministry of Public Works (provision of equipment for burial of carcasses, etc.); Ministry of Communications; Ministry of Transport; wildlife conservation authorities; state emergency services; and universities.

Preparation of a plan

When preparing a national animal disease emergency plan, the following elements should be recommended for action to both the national government concerned and the CVO:

- ***Establishment of a national committee for animal disease emergency programmes composed of high-level officers from such ministries as agriculture, health, home affairs, defence, education, communications, justice, finance and transport.***

- ***Review of existing laws, regulations and policies to provide legal structures guaranteeing the effective functioning of the national animal disease emergency control programme under all circumstances.***

- ***Establishment of a mechanism responsible for developing the national animal disease emergency task force. This task force should be under the immediate responsibility of a senior veterinary officer, who should appoint the most suitable and competent members available. A list of these members, with full addresses, telephone numbers (including after-business hours), telex and telefax numbers, should be kept in a readily accessible place.***

- ***Advise the government the necessity to provide and support an effective animal health field and laboratory service and, in the event that this does not exist, to work toward the establishment of such a service. This service should be in a position to provide at all times the necessary staff for implementing the decisions of the emergency animal disease task force.***

- ***Identify national and international sources for obtaining, at short notice, funds and procedures necessary to permit immediate emergency animal disease task force action. If administratively possible, mechanisms to fund immediately at least the critical measures to be taken without delay are available to the Minister of Agriculture. It is essential to ensure from the outset the full-time availability of highly competent staff for the task force, as well as availability of reasonable compensation for destroyed property.***

- ***Provision of addresses with business and after-hours telephone contacts of the CVO, the deputy veterinary officer and appropriate senior public servants, as well as a list of the senior national veterinary staff and their office and home addresses and telephone numbers and emergency contacts.***

• Keep a list of resources or sources of supply for materials required for an emergency programme, as well as a list of existing facilities related to emergency programmes, such as abattoirs, meat processing plants, milk processing plants, etc. These lists should include full addresses, business and after-hours telephone numbers, telex and telefax numbers.

• Develop effective communications with individual farmers, breed associations and livestock industries, including transportation and marketing systems, enlisting their support and active participation in the emergency programme.

• Establish agreements with relevant agencies and government services to ensure prompt mobilization of all essential personnel, including the armed forces and the police, in the event of an animal disease emergency.

• Keep a list (with full addresses, telephone, including after-business hours, telex and telefax numbers) of agencies and institutions having special facilities or resources and of personnel with specialized qualifications, with a view to enlisting their support to fulfil the objectives of the emergency programme.

• Prepare and regularly review a list of animal diseases that require emergency action should they be introduced into the country. Develop and maintain published information on the behaviour of these diseases and specific control measures.

• Prepare and periodically review action plans for each of the emergency diseases so that the necessary measures can be taken without delay in the event of a national emergency involving one of the diseases listed.

• Prepare procedures to be adopted while awaiting laboratory confirmation of a suspected disease outbreak. These would include initial steps to prevent possible spread of infection, such as quarantine of suspect farm and livestock and preliminary action in the implementation of the national animal disease emergency plan.

• Prepare a manual containing a precise description of the emergency disease control procedures to be followed once the presence of the disease has been confirmed. Different diseases require different strategies for control and eradication, each with its own particular problems. A strategy document should

comprehensively describe the disease control problems produced by a particular disease, the several strategies that may be available to combat it and details of the methods selected for particular situations. It should provide all the information required to understand the nature of the disease, its transmission and the principles of its control and eradication. It should also set out the alternative control strategies and the criteria for selection of any particular strategy.

- ***Prepare disease surveillance procedures to be adopted initially to delineate the geographic distribution of the disease to monitor the effectiveness of the control campaigns and to prove that the country is again free of the disease.***

- ***Prepare mechanisms for the collection, transmission and analysis of epidemiological data.***

- ***Prepare codes of practice for high-risk enterprises, such as production of biologicals, abattoirs, artificial insemination centres, dairy factories and livestock markets.***

- ***Maintain key data on livestock populations and wildlife.***

- ***Keep maps with necessary details and necessary distribution and ownership of stock. Where relevant they should include detail of regular stock movement routes, watering points and holding yards.***

The pattern of the national plan should be used at provincial and regional levels and it should be well-coordinated vertically and horizontally. All staff involved should have a clear understanding of their role in the emergency situation (see also Annex 5).

Emergency disease diagnosis

National disease diagnostic facilities

Because of the importance of early, accurate laboratory confirmation of a suspected emergency disease, considerable effort needs to be put into contingency planning for laboratory diagnosis and the upgrading of national laboratory

diagnostic capabilities. This should include consideration of the relative emphasis on self-sufficiency for laboratory diagnosis and reliance on international reference laboratories.

Another approach worthy of consideration is the formation of specialist diagnostic teams for emergency diseases. It would be an advantage for specialists to have had firsthand experience or training in the key emergency diseases. Specialists should be available on call from their normal duties to travel to the site of a reported disease to assist local staff in their investigations.

Specialized international reference laboratories

These laboratories act on a worldwide or regional basis and are designated to assist member countries on request and under agreed conditions in identifying and typing isolates of suspected aetiological agents. Many provide a number of other services, including maintenance and distribution, on request, of reference and working reagents, provision of consultant advice and training of professional and technical staff (see Annex 3).

National laboratories should develop lines of communication with the appropriate world or regional reference laboratories for various emergency diseases in advance of a suspected emergency disease occurrence.

They should determine from the reference laboratories:

- ***whether only isolated organisms will be accepted for definitive identification or whether primary diagnostic specimens (i.e. tissues and blood) will also be accepted;***
- ***what specimens are required and whether preservatives should be added;***
- ***what specimen containers should be used and how they should be labelled;***
- ***what packaging and refrigerants are required;***
- ***what accompanying history is required;***

- *how the specimens should be addressed and what other information is required on the labels;*

- *whether a quarantine import permit needs to be obtained before despatch to facilitate customs clearance. Whether couriers are required for biosecurity;*

- *telephone, telex and telefax numbers and telegraphic address of the reference laboratories.*

Roles of national and international laboratories

The limitations of the services provided by an international reference laboratory should be realized. The reference laboratory should confirm the diagnosis, type the organism to enable an appropriate vaccine to be selected and render other assistance within reason. However, once the disease is diagnosed, the reference laboratory cannot be expected to carry out the many laboratory tests required to monitor the spread of the disease and the progress of control campaigns, nor to prove finally that the country is again free of the disease. This is a national responsibility.

Emergency vaccination

Vaccine supply

In many instances, the rapid establishment of a comprehensive regional or national vaccination campaign is a key component in the control or eradication of an emergency disease outbreak. Usually, adequate supplies of the appropriate vaccine to cope with an emergency will not be available from within the country and will need to be imported. Should this be the case, the countries should, at least for those diseases that constitute the highest threat, have information to assist them in obtaining vaccine and preparing a vaccination campaign plan. The type of data required is:

- *scientific information on vaccines and their use;*

- *names, addresses, telex, telephone and telefax numbers of vaccine manufacturers;*

- ***general information on availability, quality control standards and field performance of vaccines available from potential supplies;***

- ***epidemiological data on susceptible livestock populations in each region, including their vaccination histories.***

International vaccine banks

In many cases the holding of vaccine stockpiles by an individual developing country is prohibitively expensive. This is particularly so for vaccines for which there are multiple antigenic types and subtypes. A cheaper alternative could be for several countries with similar requirements to pool resources and form an international vaccine bank.

Training for emergencies

Animal health services

All animal health service personnel should be thoroughly familiar with their respective roles in the event of an emergency.

Special training is needed for emergency disease action and the manual prepared for the national emergency disease plan should form the basis of this training.

The level and range of training needed will vary in relation to the expected roles of the various sections of staff. Veterinary staff will need a comprehensive knowledge of the exotic diseases considered to be the greatest threat. In particular, they should have a thorough knowledge of the clinical symptoms, epidemiology, diagnostic procedures and control measures for such diseases, both at field and laboratory level. Auxiliary personnel should be trained in vaccination procedures for the various diseases, assisting in the taking of diagnostic samples, disposal of animals and cleansing and disinfection procedures. If necessary, the assistance of international organizations, collaborating laboratory centres and veterinary schools should be sought.

Veterinary schools

Teachers at veterinary schools should have knowledge of the national emergency plan and the emergency disease situation at national and international levels. The subject should be included in the curriculum at both graduate and postgraduate levels. Close and regular contact should be maintained between the veterinary schools and animal health services for this purpose.

Simulation exercises

Simulation exercises are as important for emergency disease readiness as the preparation of the national plan. They can also play an important part in amending or updating the plan in light of practical experience.

Purpose

- ***To train individual "action groups" (task forces) and accustom them to working as a team.***
- ***To identify staff competence in working under emergency disease situations and to select leaders for action groups.***
- ***To identify problems in implementing the national plan.***
- ***To test communications between various groups in the task force.***

Objectives and types of exercise. It is important at the outset to decide on the objectives of the exercises so that they may be planned accordingly. An experienced leader should be responsible for drawing up the plan and briefing staff on their respective roles. The exercises may be in the form of simple "desk" exercises, more complex "office" exercises or field simulation exercises.

All these activities are complementary in an emergency response. A simultaneous involvement of all staff will be necessary at times in order to test the effectiveness of the system as a whole and also to serve as continuing training of staff.

Desk exercises can be useful for small groups to develop office in support of field operations, e.g. providing the necessary data and mapping, systems for recording and distributing information of animal movements, contacts, etc.

Office exercises at headquarters and at provincial and field levels are necessary to put all desk procedures into action, coordinate the activities and test the communication network within the animal health service and with the outside organizations that will be involved during an emergency.

Increasingly, national emergency plans are utilizing modem computer-based information systems, and basic training programmes have also been developed and designed to meet the needs of particular national plans. Care must be exercised in developing the computer systems, as a break in the linkage between the input data and retrieval system could cause serious problems in an emergency situation.

Field simulation exercises play a most important part, both in testing the national plan under practical conditions and for the training of staff. They should be designed to provide the most realistic possible simulation of an outbreak of disease. It is important to ensure that the hypothetical epidemiology of the outbreak matches the epidemiology of the emergency disease and that the descriptions of people, places and movements on and off the farms are as real as possible.

At the conclusion of the exercise a comprehensive evaluation should be carried out with observations from the exercise leader and all participants. A report should be prepared for senior animal health service staff who will, if necessary, revise the national plan.

An evaluation of the performance of staff involved in the exercise will assist in the selection of staff for the sections or task forces.

Simulation exercises should be carried out periodically and form pan of the continuing training programme for staff. If a threat from a new exotic disease is identified, a special exercise should be carried out.

Emergency operations manual

An outline of the documents that should be included in a manual as part of the national emergency plan is given in

Annex 5.

Bibliography

FAO. 1980. Report of the Expert Consultation on Emergency Disease Control. Rome, FAO.

FAO. 1984. Emergency disease of livestock. Diseases and diagnoses (Vol. I) and Contingency planning for emergency diseases (Vol. II). Rome, FAO.

WHO/ISS. 1988. Veterinary public health in disaster situations. Veterinary Public Health Report, ISS/WHO/CC/88.2. WHO/FAO collaborating centre for research and training in veterinary public health, Istituto Superiore di Sanità, Rome.

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Chapter 8: Legislation

Animal health control and surveillance cannot be left solely to individual animal owners and producers. Animal health is also a national duty for public authorities. An appropriate legislative and regulatory apparatus should be formulated, adopted, implemented and enforced.

Although juridical texts vary, generally applicable forms can be designed such as zoosanitary legislation. These texts should be:

- ***relevant to the country's particular political, constitutional, economic and juridical system (i.e. common, civil or Islamic law) and harmonized with the existing judicial and institutional structure;***
- ***adapted to the country's technical limitations and possibilities and responsive to the real needs of the country;***
- ***easily usable and permanently adopted by the appropriate authorities. Legislative texts should be adopted by legislative powers, either as a law passed by parliament or as an edict/ordinance decreed by the head of state. Regulations that faithfully adhere to the principles of the applicable legislative texts and are easily modifiable should be promulgated by executive powers such as the head of state or ministers.***

Although animal health control constitutes a "public service", it should be noted that it is necessarily implemented by both public institutions (national animal health services and their agents) and private persons (veterinarians on whom the law imposes duties to report and act rapidly). All animal health legislation and regulations, qualitatively, in terms of hygiene and health, and quantitatively, in terms of tariff and non-tariff interventions in production, should therefore be formulated with these different implementing and enforcing entities in mind.

Legal powers

Legislation on animal and public health should be drafted in a form that is clear and enforceable. It should include the legal powers to enable animal health service staff to carry out their duties effectively and specify the authorities responsible for enforcement of the legislation.

Animal health and public health legislation

An animal health act and a public health act should give the necessary powers to the animal health service to perform its duties and also state the responsibilities of livestock owners and others in observing the law. The acts should provide for the rapid introduction of new measures through subordinate legislation when new diseases or situations have to be controlled. The enforcement procedures and responsible authorities should be laid down.

Scope of inspection powers

The official animal health service in a developing country should have legal powers to exercise inspection over:

- ***animals, including domestic and wildlife, for purposes of animal health control;***
- ***animal products;***
- ***products destined for animal feeding; products destined for the prevention, diagnosis or treatment of animal diseases;***
- ***anything capable of transmitting animal disease;***
- ***related premises, equipment, facilities and means of transportation, as specified by pertinent laws, rules and regulations;***
- ***related documents, as specified by pertinent laws, rules and regulations.***

Some countries give their animal health services responsibilities under other legislation to implement official legislation and regulations to manage animal production, aquaculture, wildlife health, animal welfare, vaccine and biologicals production, laboratory animal medicine, etc.

In particular, the official animal health service in a developing country should have legal power to perform clinical examinations of any animal and testing or other examinations of products listed above subject to official inspection.

Further, to the extent specified by and in accordance with pertinent laws, rules and regulations, the official animal health service should have the power, on a permanent or temporary basis, to exercise effective veterinary inspection to:

- ***apply official identifying marks to animals, products, containers, premises, equipment and means of transportation;***

- ***issue or withdraw official certificates and licences;***

- ***prohibit, limit, restrict or regulate the import, export and movement within the country of animals, animal products and other products subject to veterinary inspection, as well as feed, vaccines, biological infectious agents, pests and drugs;***

- ***order and implement the isolation, examination and testing of animals;***

- ***perform or order to have performed diagnostic tests, vaccination and prophylactic or therapeutic treatment of animals, processing of products and disinfection of premises, equipment, facilities and means of transportation;***

- ***collect samples for the purpose of diagnosis, sanitary or quality standard control or animal health legal proceedings, and submit such samples for laboratory examination;***

- ***confiscate animals and products or cause such confiscation to be effected;***

- ***destroy animals and products or cause such destruction to be effected;***

- ***register and supervise the management of specified establishments and persons exercising specified activities;***

- ***confirm or cancel the approval of the operation of individual establishments and activities or individual persons and, where this approval has been withdrawn, prohibit or cause to be prohibited the operation of an establishment or the activity of a person;***

- ***prohibit, limit, restrict or regulate the access of persons to specified premises or defined places;***

- ***prohibit, limit, restrict or regulate the introduction to or removal from specified premises or defined places of animals, products and other objects;***

- ***control for animal health purposes the artificial and natural reproduction of livestock and poultry, etc.;***

- ***operate veterinary laboratories, quarantine stations and other official establishments under the direct responsibility and authority of veterinary officers.***

Support by other administrations

For the exercise of their official functions and legal powers, the responsible veterinary officers and authorized auxiliary personnel should have, on a permanent basis, immediate and full support from law enforcement authorities, municipal and other local administrations and customs authorities.

Notifiable diseases

Definition

The term "notifiable disease" should only be applied to diseases subject to intensive official measures of prevention and control. This should include at least all the OIE List A diseases. Notifiable diseases trigger the following essential requirements:

- ***There should be effectively applied provisions to ensure that all cases of a notifiable disease come to the knowledge of the veterinary authorities, and the government should undertake to apply and enforce such provisions.***

- ***Each occurrence of the notifiable disease should be followed by a sequence of official control actions and should be specified by relevant rules and regulations.***

- ***The legal powers and provisions referred to in the next section, "List of notifiable diseases", should be fully applicable to each of the diseases designated as notifiable.***

- ***There should be legal authority to compel owners to apply prescribed sanitary measures to their livestock, with appropriate provisions for incentives and punitive measures to ensure their cooperation. Such measures should be applied consistently, including payment of adequate indemnities in the case of compulsory slaughter.***

Diseases subject to other forms of regulatory control should not be designated as "notifiable diseases", but referred to as "reportable diseases" or "officially controlled diseases".

List notifiable diseases

The "notifiable diseases" should be specified by national law or regulation. The "list of notifiable diseases" should form an integral part of national animal health legislation and should include:

- ***those diseases which the government concerned has undertaken to hold as notifiable by international commitment in the framework of multilateral or bilateral conventions and agreements, i.e. the OIE List A diseases;***

- ***other diseases officially controlled in the same manner as may be provided for by relevant national rules and regulations, subject to the requirement that the government concerned undertakes to apply and enforce such control measures effectively and consistently.***

Compulsory notification

There should be appropriate and effective enforcement provisions to ensure that every reasonable suspected case of a notifiable disease is reported by the general public to the official animal health service without delay. In principle, every person having in possession or attendance an animal or carcass which that person suspects, or ought to suspect, of being affected with a notifiable disease should be obligated to give notice of such fact to the official enforcement authority or animal health service. In particular, effective measures should be applied to ensure that this compulsory

reporting is complied with by veterinarians, livestock owners and attendants, butchers, knockers, and other persons who, by profession, trade or regular occupation, are directly concerned with animals or carcasses. To that end, relevant laws and regulations should provide that a notifiable disease is a priori suspected in every case of serious illness or death in an animal, or alteration in a carcass, unless the symptoms can reasonably be attributed to another disease that is not notifiable.

Actions

There should be effectively applied rules and regulations governing a sequence of actions to be implemented regularly and consistently whenever a veterinary officer finds or suspects an animal or carcass is affected with one of the notifiable diseases. These measures should be applicable to each of the notifiable diseases concerned.

Veterinary inspection

Scope and purpose

Veterinary inspection should include ascertaining the facts and application of relevant measures and should be exercised inside the country and at the frontier through effective measures designed to:

- ***prevent the introduction of notifiable diseases from abroad, prevent the spread of such diseases inside the country, ensure that every case of any such disease is immediately brought to the attention of the enforcement and veterinary authorities and ensure that the measures of sanitary action, as provided for by relevant rules and regulations, are immediately applied in every such case;***

- ***ensure the implementation of control and eradication programmes;***

- ***ensure compliance with official standards of health and quality for the purposes of internal and external trade.***

These measures should be governed by appropriate rules and regulations designed to be consistent with the technical

and sanitary purposes intended and with the means of implementation available. These measures should be implemented and enforced consistently and regularly. With regard to external trade, such measures should not be applied in a manner that may result in an arbitrary or unjustifiable discrimination between countries where the same conditions prevail or between international and internal trade.

Conditions of inspection

The veterinary officers and auxiliary personnel should have access to all places or premises where it may be necessary to carry out an official veterinary inspection. They should be bound by professional confidentiality. The owners, managers and employees of the places visited should be obligated to facilitate the inspection and to give all assistance that may be reasonably requested for that purpose. In particular, the authorized officers and auxiliary staff should have the power to order livestock owners to assemble their livestock for inspection and to inspect any stock wherever such stock may be kept.

Drug control

There should be legal provisions to control the registration, manufacture, importation, distribution and use of veterinary drugs and biologicals. The control may be exercised as part of drugs control for both humans and animals or there may be separate legislation for human and animal drugs and biologicals.

Registration

All drugs and biologicals used in a country should be registered. This is usually done by a drugs control council (or commission) that may control all drugs or just those for animal use. If the council registers and controls drugs for both human and animal use, there should be a veterinary subcommittee responsible for the registration of veterinary drugs.

Before registering a drug, the registration authority should examine the protocols supplied by the manufacturers to back up any claims about the efficacy, quality and safety of the drug. In registering a drug for use, the registration authority will set out the conditions for its distribution and use, e.g. to be used by veterinarians only, prescription only,

sold through pharmacies, etc. It is often useful to be aware if the drug has already been registered in a country with a reliable registration system, as a guide to the consideration.

Control of manufacture, importation and distribution

Only drugs and biologicals that have been registered should be allowed to be imported or manufactured.

Compliance with the conditions specified in the registration should be monitored by an inspectorate, which may include animal health service staff.

Quality control

There should be powers to allow for the taking of samples of drugs and to check their quality. This checking is expensive and the quality control testing may be done on a random basis. Manufacturers normally have their own in-house quality control system.

Stock feed

There should be legislation to govern the manufacture and sale of stock feeds. This legislation should require: the registration of feed manufacturers; that the feed contains, within specified limits, the ingredients that the manufacturer claims; and labelling (to include a list of the main constituents).

Veterinary council

Every country should have a statutory body independent of the official veterinary service but recognized by the government to maintain a register of veterinarians, to prepare ethical guidance for the profession and to oversee professional conduct.

The council should have the power to:

- *establish the standards of competence for registration as a veterinarian;*
- *register only those veterinarians who meet these standards of competence;*
- *have a code of conduct and ensure that members behave in an ethical and professional manner;*
- *discipline members and, if necessary, remove them from the register.*

Veterinary public health

Much of the legislation required to control zoonoses, in relation to the source of infection in animals, will have been covered in the Animal Health Act.

The Public Health Act should provide for the legislation necessary for licensing and setting standards for premises, slaughterhouses, meat processing plants, cold stores, etc., giving powers for inspection and subsequent action, if necessary, to ensure the hygienic production and safety of food of animal origin intended for human consumption.

In relation to meat and meat products it should include:

- *abattoir design and construction;*
- *quality of water supplies;*
- *safe disposal of effluent and waste products;*
- *hygienic handling of meat;*
- *detailed meat inspection procedures including ante-mortem and postmortem inspection;*
- *actions to be taken when disease conditions are encountered;*
- *sampling to be used to test for residues.*

These procedures are detailed in the FAO/WHO Codex Alimentarius.

In countries in which the production and safety of such other foods as milk, fish and their products are also the responsibility of the Animal Health Service, parallel legislation should be enacted to cover standards of production, inspection and enforcement.

Bibliography

FAO. 1985. Recommended international code of practice for ante-mortem and post-mortem judgement of slaughter animals and meat. Codex Alimentarius, 1st ed., Vol. C. Rome, FAO.

OIE. 1986. International Animal Health Code. Paris, OIE.

OIE. 1987. International Animal Health Code. Supplement. Paris, OIE.

OIE. 1988. International Animal Health Code. Supplement. Paris, OIE.

OIE. 1989. International Animal Health Code. Supplement. Paris, OIE.

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Chapter 9: Animal health information

National reporting

Livestock statistics

The Animal Health Service should be in possession of reliable official statistics on the livestock and poultry populations of the various communities and administrative districts of the country, as well as the size of herds and flocks, movement of animals, productivity and commercial value of animals, meat and other related products. Such data should be collected by the Animal Health Service or provided by the government authorities responsible for statistical services. Animal health services, in order to plan and implement official action efficiently, should have the right to influence the kind of data to be collected by the responsible government authority.

Animal health services should have sufficient information on human populations and on synanthropic, feral and wild animals, as well as on disease vectors and poisonous animals, to able to judge their epidemiological importance.

Internal reporting

The internal reporting of the Animal Health Service should be designed and applied to keep the central directorate constantly, reliably and adequately informed on:

- ***the state of notifiable diseases;***
- ***findings made and actions accomplished by the animal health field service;***
- ***findings made, actions accomplished and progress achieved by special control and eradication programmes and general schemes for the promotion of animal health;***
- ***implementation of official milk, fish and other product inspection, findings made and decisions taken;***
- ***implementation of veterinary import and export inspection, findings made and decisions taken;***
- ***diagnoses and other accomplishments of the official laboratory service;***
- ***activities in the field, such as mass vaccinations and disease investigations;***

- ***activities in the field of veterinary inspection of edible and non-edible animal products, as well as feed, drugs and other official veterinary inspection activities.***

Such information should be as comprehensive and adequate as required to enable the central directorate to:

- ***make precise and reliable official statements on the occurrence, development or absence of notifiable diseases for the purposes of trade;***

- ***evaluate the circumstances essential for determining the declaration of restricted areas, their limits and measures to be applied in such areas;***

- ***decide on control strategy and policies and, in particular, on the application of a slaughter policy, together with cost-benefit estimates and feasibility studies;***

- ***follow up results obtained by systematic eradication schemes and adjust the programme policy to changing circumstances;***

- ***note, in its earliest stages, any deterioration of the general animal health situation and take the appropriate measures to ascertain the causes and to counteract such development;***

- ***evaluate the efficiency of field services and control schemes and make adjustments where appropriate;***

- ***evaluate budget implications and disburse and supervise the use of funds.***

Reporting of notifiable diseases

Countries should consider all OIE List A diseases, at a minimum, as notifiable.

Veterinary officers with reporting responsibilities and other animal health officers should be obliged to report through the supervising veterinary officer to the central directorate, without delay and on the day of occurrence, any case or suspected case of a notifiable disease, indicating:

- ***number of infected sites at the beginning of the reporting period;***
- ***number of infected sites declared during the reporting period;***
- ***number of infected sites at the end of the reporting period;***
- ***number and location (coordinates) of communes and administrative districts in which the infected sites concerned are located;***
- ***number of animals in infected sites under medication/treatment;***
- ***number of animals affected by control measures in the restricted and observation areas;***
- ***number of deaths;***
- ***number of animals slaughtered;***
- ***number of vaccinations carried out in connection with the reported outbreaks and types of vaccine used.***

The central directorate should be kept informed of any further action regarding sanitary measures taken, development of mortality and morbidity, numbers of animals slaughtered, indemnities paid and other costs involved, further results of the epidemiological enquiry and end of the outbreak. All information received should be assembled under the responsibility of the central directorate into reports (further discussed in the paragraph "Published reports", below).

While the full scope of such information should be assembled and kept available for internal action and planning purposes, it must be recognized that, in bulletins destined for publication, the information should be limited to the number of infected sites declared during the reporting period and the location of the communes or districts concerned.

If a notifiable disease appears for the first time or reappears after a period of absence in a country, the Animal Health Service should inform the neighbouring and trading countries and the international organizations concerned without delay, as well as the regional and subregional agencies of governmental veterinary cooperation where applicable.

Periodic reporting (other than notifiable diseases)

Field services, quarantine services, diagnostic laboratories, special control and eradication schemes, artificial insemination centres and general animal health programmes should submit periodic reports to the central directorate, indicating diseases diagnosed, number of tests, vaccinations and treatments performed, results of tests and decisions taken at inspection. Special control and eradication schemes should record and report the number of herds and animals covered by the scheme, the number of certified free herds and the number of animals therein. Where appropriate, the number of inseminations, conceptions and carvings, and results of veterinary examination of females following failed conception or abortion, should be recorded and periodically reported by artificial insemination centres and infertility control schemes.

Reporting on import inspection

Findings made, decisions taken and actions accomplished with regard to imports, inspection of animals and products should be reported to the central directorate without delay and on the day of inspection, if any restrictive or prohibitive action is implied. Otherwise, relevant reports should be assembled and submitted periodically.

Published reports

The Animal Health Service should issue:

- ***periodic bulletins, at convenient intervals, providing information on the occurrence of notifiable diseases;***
- ***annual reports, providing information on the state of officially controlled diseases, other diseases diagnosed by field and laboratory services, type and number of vaccinations and other findings made and actions accomplished by the Animal Health Service.***

The bulletins and annual reports should be published by the government and/or on behalf of the government by the international and, where applicable, regional or subregional governmental organizations designated for this purpose.

International reporting

Groups of communicable diseases

Animal diseases are classified by FAO/WHO/OIE according to their importance and rapidity of spread, as follows:

- ***List A - communicable diseases that have the potential for very serious and rapid spread, irrespective of national borders, which are of serious socio-economic or public health consequence and which are of major importance in the international trade of livestock and livestock products.***

- ***List B - communicable diseases considered to be of socio-economic and/or public health importance within countries that are significant in the international trade of livestock and livestock products.***

- ***List C (FAO) - communicable diseases with economic, public health and/or social importance at the local level.***

Reporting to International organizations

Any diseases in List A or an occurrence of a disease in List B that is of exceptional epidemiological importance to other countries should be notified by telex, telegram or telefax to OIE, and to other relevant organizations, neighbouring countries and countries with animal and/or animal product trading links, within 24 hours following confirmation of a case or outbreak.

For OIE member countries, the subsequent reporting procedure and routine reports should be in accordance with the OIE Guide.

OIE communicates information to member countries:

- ***by telex, telegram or telefax to countries at immediate risk and by mail to the other countries;***
- ***through the monthly OIE Bulletin, which provides data on diseases in Lists A and B as necessary;***
- ***through the OIE annual publication World Animal Health.***

Countries that are not members of OIE should report as above to the FAO Animal Health Service, Rome. FAO will forward the information to OIE in accordance with an official agreement between the two organizations and also to other countries at risk.

Every year FAO, WHO and OIE send to the directors of animal health services a joint questionnaire for the preparation of both the FAO/WHO/OIE Animal Health Yearbook and the OIE World Animal Health.

This questionnaire is divided into two parts: Part I for information regarding diseases in Lists A and B and Part II for information regarding diseases in List C, the number of cases of zoonoses in humans and the number of veterinary personnel.

The diseases in OIE Lists A and B are given in Annex 4.

Bibliography

FAO/WHO/OIE. Animal Health Yearbook. Rome, FAO.

OIE Bulletin (monthly). Paris, OIE.

OIE World Animal Health (yearly). New animal disease outbreaks - statistics. (No. 1). Animal health status and disease control methods (No. 2). Part 1: reports; part 2: tables. Paris, OIE.

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Chapter 10: Animal health and the environment

The objective of animal health services is to contribute to improved levels of livestock production. In developing countries, the first stage is very often the control of major diseases to enable increase of animal production. While pursuing these objectives, the activities could result in environmental degradation and pollution, due to increases of livestock population, through mismanagement and overutilization of the available natural resources and veterinary products.

Animal health and ecological implications

Land use

The intensification of livestock production as part of the development process may, if not properly carried out, contribute to land degradation through overgrazing, reduced soil fertility, erosion and desertification. This is particularly true in marginal areas unsuitable for agriculture, where most extensively managed ruminants are kept. Major animal health activities, such as vaccination campaigns or parasite (e.g. tsetse or ticks) control programmes, have positive impacts on productivity and size of animal populations that lead to increased animal population pressure and may contribute to land degradation unless correct land-use planning is implemented.

Proper land-use planning and utilization, taking into account the diverse agricultural, topographical and geographical aspects involved, is essential to reducing the risk of adverse ecological developments while increasing productivity and animal disease control. Therefore it requires a multidisciplinary approach to ensure the correct planning and utilization of the land.

Pollution

In a similar way, the intensification of livestock production results in increased use of veterinary products, such as pesticides, and the production of different types of waste, like manure from feedlots. The pollution or contamination of the environment, especially water supplies, due to animal wastes (manure and liquid manure) is an increasing problem and must be foreseen when planning new animal housing, especially in the industrial production systems. Proper action has to be taken for the careful use or safe disposal of the slaughterhouse waste. These can be valuable by-products if appropriately processed. This should involve sterilization or rendering of ail condemned or contaminated material before further processing and release for use. Improper disposal of this type of waste can lead to an increase of predatory animal species (e.g. hyenas, rural dogs, etc., on land and sharks with disposal to sea).

As well, waste food from international sea and air traffic must be sterilized to avoid dissemination of animal disease through contaminated animal products.

Environmentally friendly methods of applying insecticides (targets and traps for tsetse control) and acaricides (pour on) are becoming available. These have the potential for reducing possibilities of contamination of the environment and should be utilized where practical. The use of pesticides may be minimized by using breeds or their crosses that are resistant to parasitic species, e.g. trypanotolerant cattle or tick-resistant breeds.

Changing ecological equilibrium

Frequently the reduction of the population of one species in an area has unexpected consequences for the environment through its impact on non-target species. Occasionally the application of disease-control measures may have unpredicted consequences for the environment.

- ***The widespread and disproportionate use of antibiotics and parasiticides, such as anthelmintics and acaricides, has lead to the development of strains of pathogens that are resistant to the drug employed, thus complicating control.***

- ***Poisoning coyotes (predators) to control rabies in Mexico resulted in such a dramatic increase in the***

jackrabbit population that it became a pest in agriculture.

- ***Game parks in Africa may constitute a reservoir of infection of certain livestock pathogens, e.g. foot-and-mouth disease and trypanosomiasis.***

These examples serve to emphasize the need for comprehensive planning of animal health interventions to take fully into account the possible ecological consequences.

Use of veterinary products

With the increased use of veterinary products for the treatment of disease, control of parasites and enhancement of production levels, it is essential that all those concerned with the handling and administration of such products be made aware of their potential danger to the environment.

Veterinary products are generally supplied with explicit details on their use, disposal, possible side-effects and, in the case of pesticides, their toxicity rating and recommendations for neutralization in case of accident. This information should be in an appropriate language. The details included on the packaging may, however, vary from country to country depending on national regulations governing registration. To ensure an adequate standard of packaging and instructions on use, close cooperation should be established and maintained between animal health services and registration authorities. Products destined for use and administration by untrained personnel, such as livestock owners, should be supplied with instructions in the appropriate language. Labels proposed by manufacturers for new products should be submitted to registration authorities for prior approval.

Use of pesticides

Strict control over the importation, registration, distribution and use of pesticides should be exercised, while users should be adequately trained in their handling and methods of application. Recommendations on this aspect are contained in the FAO/WHO Guidelines for pesticide use.

Presence of toxic residues in animal products

Following the administration of veterinary drugs, their residues may be present in edible products of treated animals. Potential health hazards emanating from residues in food can be divided into toxicology, immunopathology and microbiology. This last aspect is a consequence of use in feed of antimicrobial substances at subtherapeutic levels.

Other chemicals are used in animal husbandry. These include additions such as antioxidants or antifungal agents used to preserve the quality of the feed, colourants, disinfectants and pesticides. These are also a cause of public health concern.

Control over the presence of residues of pesticides, drugs and hormones in meat, milk, eggs and other animal products is not yet common in developing countries, but it is advisable to reinforce the control of these products.

To avoid these problems, dissemination of information, seminars and training activities on the presence of residues in animal products should be carried out.

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Chapter 11: International cooperation

Steadily increasing trade and movement, including export and import of animals and their products, increase the risk of spreading animal diseases. Therefore, international cooperation in animal health and related matters should be improved at all levels - bilateral, subregional, regional and global.

New and more difficult animal health problems will require further specialization in veterinary medicine and close international cooperation will be necessary. In this context, improved international exchange of information on epidemiological situations, on new scientific and technological discoveries and methodology and on accumulated practical experience will be important. Increased sharing of sophisticated and expensive laboratories and other facilities will also be needed.

The priority of future international cooperation and collaboration will continue to be the organization and coordination of the control of major transmissible diseases that do not respect country borders (e.g. rinderpest, foot-and-mouth disease, African horse sickness, African swine fever, Newcastle disease, rabies, etc.). More attention should also be given to those diseases transmitted by vectors.

For all forms of effective international cooperation and collaboration, there is a need for active participation by all countries. This is particularly important in programmes to control and eradicate transmissible diseases affecting adjacent countries.

The protection of individual countries, subregions and regions against the introduction of exotic animal diseases through the importation of animals and their products continues to be a matter of concern for all countries. In this context, international standards regulating veterinary exports and imports should be respected as the minimum requirement.

Bilateral cooperation

Cooperation on disease information and control measures between neighbouring countries is essential. Trade in animals and animal products, uncontrolled movements of animals across borders and vector-borne, wildlife or airborne diseases require close collaboration between neighbouring countries if the spread of disease is to be prevented or

limited.

Regular bilateral meetings between animal health services of neighbouring and trading countries should be held. Formal arrangements for animal health personnel to perform functions across borders, where feasible, should be made.

It has proved to be very useful to promote collaboration in veterinary fields by official bilateral agreements or conventions at governmental or lower levels. This form is useful between neighbouring countries and between countries linked by regular import/export of animals and their products.

Regional and global cooperation

Similarly, cooperation between nations of large areas makes the role of regional organizations important. These regional organizations have varying formal agreements and arrange regular meetings in addition to emergency or special topic sessions.

Highly virulent diseases can place the producers of an entire continent at potential risk, along with its consumers, because of the threat of increased costs or even a shortage of animal products. Therefore, every effort should be made to harmonize legislation and encourage cooperation in its enforcement.

Regarding the global international organizations, United Nations organizations such as FAO and WHO, together with OIE, assist member countries in animal health fields within the framework of international responsibilities laid down by their respective constitutions and agreements at global and regional levels.

The major forms of FAO technical assistance are: technical advice; professional information; fielding of experts and consultants; provision of technical documentation; training; and preparation and execution of field projects in close cooperation with animal health services of member countries. Under FAO's Regular Programme, the Animal Health Service organizes, according to the needs and country requests, expert consultations, training seminars, study tours, fellowships, etc. Particular attention is given to the coordination and support of animal health research of international importance and of the transfer of technology from developed to developing countries. The technical responsibility is

with the Animal Health Service at FAO headquarters in Rome.

The establishment of regional laboratories with international responsibilities specialized in the diagnosis of specific diseases or in the production of vaccines and antigens has proved very useful. These laboratories also provide for the standardization and, when appropriate, the distribution of testing techniques and reagents. A very important form of international cooperation is the international network of FAO, WHO and OIE reference laboratories and collaborating centres. They are able to provide advice and assistance with diagnosis on complex cases, diagnostic standard reagents and training.

The International Office of Epizootics (OIE) is an organization with official veterinary services in most countries of the world. Founded in 1924, its principal objectives are to stimulate and coordinate the dissemination of information on infectious diseases, including changes in disease status and programmes. It publishes the International Animal Health Code and Manual (for diagnostic and vaccine standardization), which makes recommendations for international trade and disease control. OIE cooperates actively with FAO and WHO on a variety of matters and with various regional organizations. Information handling is its most important task and OIE has sponsored a series of meetings and training courses on the subject. OIE headquarters is in Paris.

The World Health Organization (WHO) contributes significantly to animal health wherever human health is affected on an international scale. This strongly regionalized organization has individual country, continental and worldwide programmes and responsibilities. The Veterinary Public Health (VPH) section, which deals with zoonoses and food hygiene, reports to the director of the Division of Communicable Diseases. In addition to their own resources, the VPH section has access to the expertise of the many specialized WHO agencies. WHO cooperates closely with FAO and OIE.

FAO and WHO regional and subregional offices coordinating or participating in animal health programmes in the respective territories can be found on all continents.

Collaboration with other national and international veterinary associations, such as the World Veterinary Association, can benefit national animal health services. Many of these associations publish scientific periodicals, which provide a useful source of information for updating veterinarians in their specific fields of interest.

Accelerating communications of all kinds and spreading and intensifying animal disease, together with ever-increasing needs for animal production, require increasing international cooperation. Nations and their organizations have, in most cases, agreed on ways of accomplishing this important objective.

A description of the organization and functions of the relevant international and regional organizations is given in Annex 6.

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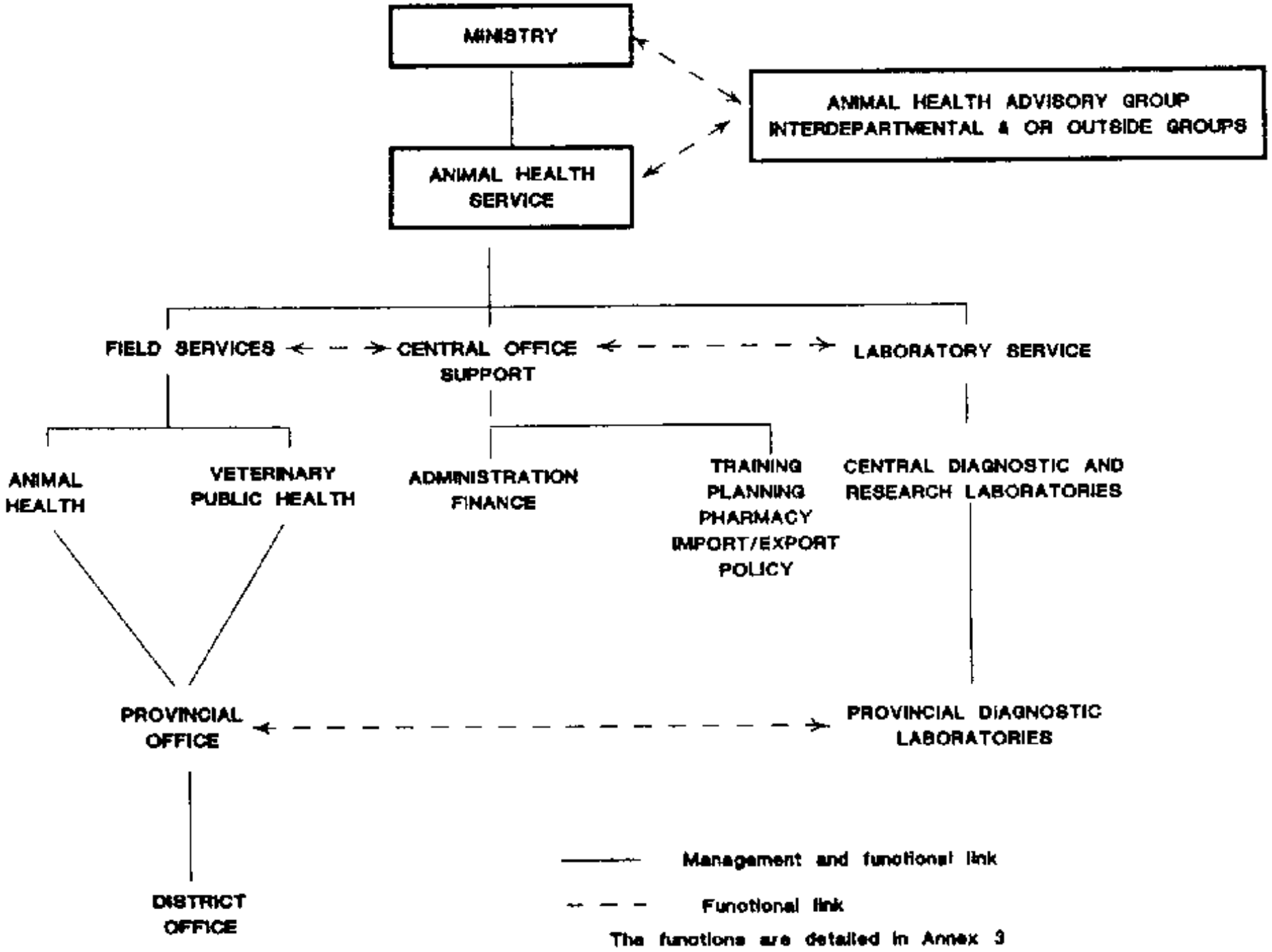
Annex 1A: Model organogram for animal health services

Model organogram for animal health services


MINISTRY
ANIMAL HEALTH ADVISORY GROUP
INTERDEPARTMENTAL & OR OUTSIDE GROUPS
ANIMAL HEALTH SERVICE
FIELD SERVICES
CENTRAL OFFICE SUPPORT
LABORATORY SERVICE
ANIMAL HEALTH
VETERINARY PUBLIC HEALTH
ADMINISTRATION FINANCE
TRAINING PLANNING PHARMACY IMPORT/EXPORT POLICY
CENTRAL DIAGNOSTIC AND RESEARCH LABORATORIES
PROVINCIAL OFFICE
PROVINCIAL DIAGNOSTIC LABORATORIES
DISTRICT OFFICE
Management and functional link
Functional link
The functions are detailed in Annex 3

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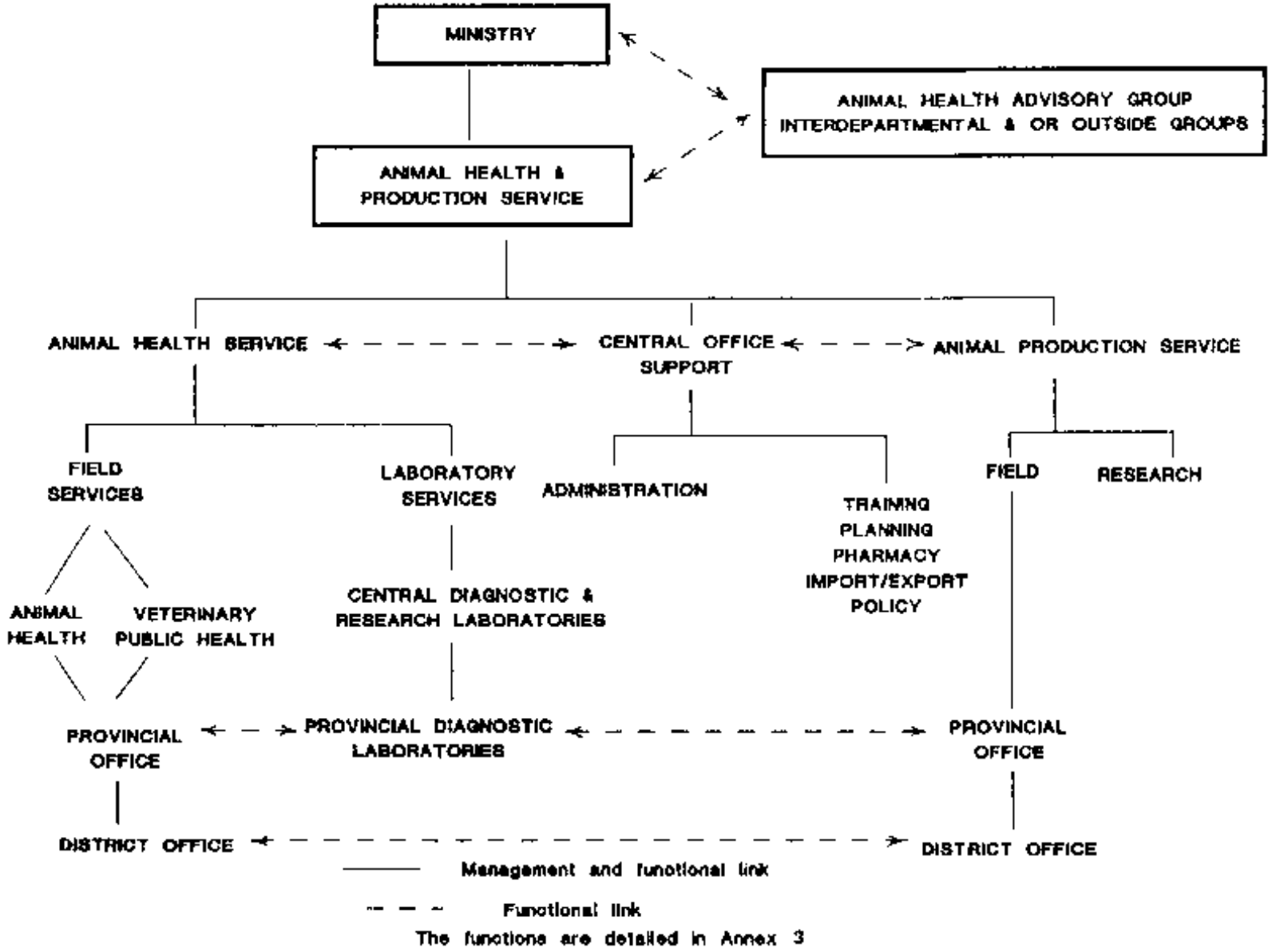
Annex 1B: Model organogram for animal health and production services

Model organogram for animal health and production services



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Annex 2: Number of livestock and veterinary personnel in developing countries

Country	Number of livestock (in thousands)						Number of veterinary personnel	
	Cattle and Horses, Camels buffaloes mules and asses			Sheep and goats	Pigs	Chickens and other poultry	Veterinarians	Animal health auxiliary personnel
Africa								
Algeria	1 410	620	135	16 100	5	23 202	547	700
Angola	3 100	6		1 250	485	6 050	72	309
Benin	932	7	1 884	680	24 000	80	263	
Botswana	2 350	176		1 730	11	1 300	30	1 625
Burkina Faso	1 850	473	5	8 400	496	21 600	81	425
Burundi	345		1 140	84	3 900	58	418	
Cameroon	4 582	64	6 383	1 299	16 400	111	269	
Cape Verde	12	7		83	70	250	8	37
Central African	2 495		1 330	397	2	15	258	

Republic					708			
Chad	4 115	440	516	4 620	13	3 750	64	548
Comoros	86	4		106		380	1	20
Congo	70		347	50	500	72	313	
Côte d'Ivoire	991	2		3 000	450	16 500	110	1 036
Djibouti	72	8	58	916			4	17
Egypt	4 600	1 971	77	2 970	15	37 730	18 220	12 210
Equatorial Guinea	5		43	5	250	9	7	
Ethiopia	28 900	8 070	1 070	42 000	20	57 000	354	1 711
Gabon	10			148	155	2 150	10	35
Gambia	300	59		353	13	400	13	175
Ghana	1 150	12		4 200	550	8 000	130	977
Guinea	1 800	3		966	33	13 000		
Guinea-Bissau	340	4		415	290	770	14	63
Kenya	13 457	2	800	13 825	100	24 000	802	2 968
Lesotho	530	148		2 490	73	1 000	22	78
Liberia	42			475	140	4 240	11	47
Libya	240	110	190	6 770		37 000	301	572
Madagascar	10 250			2 000	1 420	35 650	105	996
Malawi	1 100	1		1 220	220	8 500	35	679
Mali	4 880	588	235	11 300	60	22 000	536 647	
Mauritania	1 260	167	810	7 500		3 700	14	208

Mauritius	33			102	10	2 029	36	33
Morocco	3 500	1 580	43	23 460	9	37 600	507	1 910
Mozambique	1 370	20		500	165	22 145	99	384
Namibia	2 060	124		9 050	49	510	38	207
Niger	3 600	810	420	11 070	37	17 000	56	954
Nigeria	12 200	950	18	39 200	1 300	200 000	1 809	5 196
Rwanda	630			1 467	100	1 215	41	549
Sao Tome and Principe	4			6	3	123	9	6
Senegal	2 673	418	8	5 086	490	11 000	68	532
Seychelles	2			4	15	315		
Sierra Leone	330		510	50	5 750	21	73	
Somalia	5 200	50	6 700	34 100	10	3 220	378	1 722
Sudan	22 600	692	2 900	33 000		30 000	958	894
Swaziland	660	16		362	20	800	20	264
Tanzania	14 000	173		11 650	186	33 800	304	2 677
Togo	240	5		2 250	250	5 500	61	104
Tunisia	614	357	185	6 120	4	17 300	450	394
Uganda	3 912	17		4 680	450	17 000	419	2 094
Zaire	1 450		3 940	810	19 500	896	1 585	
Zambia	2 770	2		604	200	15 000	96	484

Zimbabwe	6 453	126		3 110	237	9 711	154	810

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Country	Number of livestock (in thousands)						Number of veterinary personnel	
	Cattle and Horses, Camels buffaloes mules and asses			Sheep and goats	Pigs	Chickens and other poultry	Veterinarians	Animal health auxiliary personnel
Americas								
Antigua and Barbuda	18	3		26	4	80	4	5
Argentina	50 782	3 155		32 545	4 200	59 310	5 695	1 143
Bahamas	5			59	20	1 450	11	
Barbados	1 8	5		90	49	1 300	15	7
Belize	50	9		5	26	875	10	9
Bermuda	1	1		1	2	80	9	10
Bolivia	5 476	1 030		14 700	2 127	14 404	1 046	32
Brazil	137 964	9 170		31 500	33	610 600	25 633	9 209

					200			
Chile	3 500	528		7 200	1 400	2 600	2 342	86
Colombia	24 671	3 200		3 644	2 600	40 000	1 181	453
Costa Rica	1 735	126		17	223	5 000	506	119
Cuba	4 927	739		495	2 500	27 100	5 126	9 141
Dominica	9			20	5	110	2	5
Dominican Republic	2 245	584		653	429	25 372		
Ecuador	4 024	766		2 183	4 160	48 186	85	179
El Salvador	1 162	118		20	450	4 750	252	92
Grenada	5	1		26	11	260	4	11
Guatemala	2 023	158		736	800	15 000	435	218
Guyana	210	3		197	185	14 800	30	35
Haiti	1 550	735		1 345	950	13 855	6	123
Honduras	2 601	261		34	600	8 200	148	171
Jamaica	290	37		443	250	3 000	44	56
Mexico	34 999	12 626	16 500	14 080	239 400	10 300	12 200	
Monserrat	9			11	1	30		
Nicaragua	1 650	303	10		680	6 500	108	90
Panama	1 502	176		7	240	6 982	425	248

Paraguay	8 074	375		595	2 305	17 473	1 021	1 680
Peru	4 044	1 370		14 790	2 380	55 000	2 408	384
St Kitts and Nevis	7			25	10	80	3	7
Saint Lucia	13	3		28	12	230	6	9
St Vincent and the Grenadines	7	1		20	9	220	1	7
Suriname	75			13	21	5 560	9	20
Trinidad and Tobago	87	5		62	84	8 000	43	107
Uruguay	10 548	475		25 574	215	9 030	1 780	846
Venezuela	12 856	1 007		1 875	2 856	61 206	4 050	870
Asia								
Afghanistan	1 600	1 730	265	14 600		7 000	203	369
Bahrain	6		1	24		950	32	19
Bangladesh	25 000	45		12 029		118 000	995	2 250
Bhutan	431	43		64	64	200	19	327
Brunei Darussalam	11			1	23	2 522	6	24
Cambodia	2 730	16		3	1 550	10 200		
China	99 076	27 390	475	180 538	348 954	2 369 892		
Cyprus	46	8		505	284	2 548	185	117

Hong Kong	1	1			350	6 535	41	279
India	269 200	2 493	1 400	160 486	10 300	270 000	29 900	61 500
Indonesia	13 350	725		16 100	6 700	472 500	3 100	1 320
Iran	8 230	2 136	27	47 500		115 215		
Iraq	1 795	499	58	11 100		77 000	3 890	2 382
Israel	357	11	10	500	130	30 990	631	174
Jordan	29	25	15	1 725		60 010	177	45
Korea, D.P.R.	1 280	49		670	3 145	20 000	6 260	30 130
Korea, Republic	2 039		4		142	4 852	58 976	6 395
Kuwait	29	4	8	363		30 000	138	165
Laos	1 855	43		95	1 300	7 372	42	2 383
Lebanon	55	18		620	22	12 000	62	36
Malaysia	859	5		447	2 350	63 100	550	278
Mongolia	2 541	2 060	542	17 751	169	341	1 108	2 808
Myanmar	12 220	149		1 395	3 000	40 335	2 090	851
Nepal	9 293			6 090	515	10 000	173	1 422
Oman	136	24	83	990		1 900	81	120
Pakistan	31 712	3 631	972	62 539		166 020	2 239	4 898

Philippines	4 282	300		2 242	7 809	72 521	2 765	1 686
Qatar	8	1	22	206		1 450	41	14
Saudi Arabia	250	119	405	11 498		70 000	166	267
Singapore				2	321	4 657	65	148
Sri Lanka	2 800	1		548	100	9 033	264	885
Syria	757	247	5	14 956	1	13 228	2 281	1 007
Thailand	10 728	18		245	4 679	110 988	1 006	4 380
Turkey	12 540	2 030	3	47 950	10	61 764	3 699	26 211
United Arab Emirates	48		100	835		6 500	159	98
Viet Nam	5 933	133		435	11 643	96 300	2 350	13 100
Yemen Arab Republic	1 083	523	63	4 471		24 600	45	204
Yemen, P.D.R.	96	170	81	2 335		2 100	20	104
Southwest Pacific								
Fiji	160	42		75	16	2 605	7	100
Papua New Guinea	101	1		16	1 789	2 760	14	95
Samoa	27	10		66	560	3	7	
Solomon Islands	13			52	147	2	15	
Tonga	9	11		14	81	130	2	19
Vanuatu	126	4		14	80	299	5	15

Vanuatu	126	4		14	80	299	5	15

From FAO/WHO/OIE Animal Health Yearbook, 1989.

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Annex 3: Reference centres

FAO reference laboratories and collaborating centres
FAO/WHO and WHO/FAO collaborating centres
Zoonoses centres and WHO collaborating centres
(as at 31 December 1990)

Part I

	Disease	Centre number
I.	**Multiple species diseases**	
A010	Foot-and-mouth disease	6, 45, 47
A020	Vesicular stomatitis	40, 56

	Vesicular stomatitis	16, 56
A040	Rinderpest	38, 42, 47
A090	Bluetongue	37, 47, 56
B053	Echinococcosis/hydatidosis	3
B056	Leptospirosis	4, 10, 18B, 31, 39, 52, 57, 67
B058	Rabies	18A, 22, 27, 28,30, 46, 58, 61, 69
B060	Screwworm (*Cochliomyia hominivorax*)	53
C612	Toxoplasmosis	11
C617	Pasteurellosis	18A
	Haemoparasite diseases	8
	Brucellosis	13, 42, 44
	Mycoplasma	51
	Influenza	1, 3
II.	**Diseases of cattle**	
A060	Contagious bovine pleuropneumonia	12, 13, 38, 42, 56
A070	Lumpy skin disease	37, 42
B101	Anaplasmosis	66
B102	Babesiosis	66
B108	Enzootic bovine leucosis	35
B109	Haemorrhagic septicaemia	13, 42, 44
B110	Infectious bovine rhinotracheitis	1
B114	Bovine malignant catarrh	56
III.	**Diseases of buffaloes**	29B
IV.	**Diseases of sheep and goats**	16

	Diseases of goats	16
A050	*Peste des petits ruminants*	38, 42, 47
A100	Sheep pox and goat pox	42, 37, 56
B154	Contagious agalcitia	13
B155	Contagious caprine pleuropneumonia	13, 38, 56
B158	Nairobi sheep disease	37
V.	**Diseases of horses**	34
A110	African horse sickness	42, 47, 56
VI.	**Diseases of pigs**	15
A030	Swine vesicular disease	40, 56
A120	African swine fever	42, 43, 56
A130	Hog cholera	19, 43, 55
A140	Teschen disease	9
VII.	**Diseases of poultry**	48
A150	Fowl plague	26, 55
A160	Newcastle disease	5, 26, 42, 48, 55
VIII.	**Diseases of bees**	14
IX.	**Miscellaneous**	
Veterinary diagnosis		48
Veterinary diagnosis (tropical veterinary medicine)		54
Veterinary epidemiology and informatics		33
Veterinary economics		13
Chemical antibiotics residues/toxicology		41
Biological products		48

Biotechnology (information networks on molecular virology)	36
Biotechnology (technology transfer)	59
Food hygiene - zoonosis	24, 70
Veterinary public health	29A, 32, 62, 64, 65
Zoonoses	2, 6, 25
Simian viruses	64

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Part II

Country	No.	Centre/address	Telephone/telex/fax	Disease	Region
Argentina	1	**FAO Reference Laboratory** Centro de Investigaciones en Ciencias Veterinarias, INTA Castelar, Buenos Aires	Tel.: 621-1447/1676/1278 Telex: INTAAR 17518	Bovine virus diarrhaea, parainfluenza 3 infectious bovine rhinotracheitis	Argentina/Brazil/ Chile/Paraguay/Uruguay
	2	Pan-American Center (CEPANZO) Correo Central Castilla 3092	Tel.: 792-4047 Telex: 24577 CPZ AR Fax: 112328 792-4059 (Director)	Zoonoses	

		1000 Buenos Aires			
Australia	3	WHO Collaborating Centre for Echinococcosis/Hydatidosis Research, School of Veterinary Studies, Murdoch University Murdoch Western Australia 6150	Tel.: (09)332-2211 Telex: AA 92711	Echinococcosis/hydatidosis	
	4	WHO/FAO Collaborating Centre for Reference and Research on Leptospirosis, Laboratory of Microbiology and Pathology Department of Health 63-79 George Street Brisbane, Queensland 4000	Tel.: 224 5549 Telex: 41 686	Leptospirosis	
	5	**FAO Collaborating Centre** University of Queensland Department of Veterinary Pathology and Public Health St Lucia, Brisbane Australia 4067	Tel.:(07) 3772565 Telex: UNIQLD AA40315 Fax: 8781679 Cable: BRISBANE UNIVERSITY	Newcastle disease	Asia/Pacific/Southwest Asia
Brazil	6	**FAO Reference Laboratory** Panamerican Foot-and-Mouth Disease Center, PAHO	Tel.: (021) 771-3128 Telex: (021)30253 CPFA BR Fax: (021) 7713128	Foot-and-mouth disease, FMD-like infections	South-Central America

		Caixa Postal 589 Z/C-00, Rio de Janeiro			
China	7	WHO Collaborating Centre for Research and Training on Zoonoses, China National Centre for Preventive Medicine PO BOX 5, Changping, Beijing		Zoonoses	
Colombia	8	**FAO Reference Laboratory** Laboratorio de Investigaciones Médicas Veterinarias (LIMV) ICA, AA. 297 43, Bogotá		Haemoparasitic diseases	Colombia/Ecuador/ Peru/Venezuela
Czechoslovakia	9	**FAO Reference Laboratory** Veterinary Research Institute Hudcova 70, Brno	Tel.: 57811 Telex: 62475 vuvet	Teschen disease	World
	10	FAO/WHO Collaborating Centre for the Epidemiology of Leptospirosis Institute of Epidemiology, Medical Faculty of Komensky Institute CSL Armady 52, Bratislava	Tel.: 522 15	Leptospirosis	
	11	FAO/WHO Collaborating Centre for Research and		Toxoplasmosis	

Denmark		Reference on Toxoplasmosis Department of Toxoplasmosis and Viral Diseases, Statens Seruminstitut, Amager Boulevard 80 2300 Copenhagen S			
Ethiopia	12	**FAO Collaborating Centre** National Veterinary Institute Debre-Zeit, Ethiopia c/o FAO Representative PO Box 5536, Addis Ababa	Tel.: (Addis Ababa) 338001 Telex: c/o FAO Rep. 21216 FAOAAET Fax: c/o FAO Rep (170)51 5266	Contagious bovine pleuropneumonia	
	13	**FAO Reference Laboratory/FAO Collaborating Centre** Institut d'Elevage et de Médecine Vétérinaire des Pays Tropicaux 94704 Maisons-Alfort Fax: 437 52300	Tel.: 4368-88-73 Telex: IEMVT 262017 F	Contagious bovine pleuropneumonia, contagious caprine pleuropneumonia, contagious agalactia, haemorrhagic septicaemia Veterinary economics (FAO Collaborating Centre)	Europe/Near East Africa
	14	**FAO Collaborating Centre** Laboratoire de Pathologie des Petits Ruminants et des Abeilles (L.P.P.R.A.), 63 Avenue des Arènes	Tel: 9381 5282 Fax: 9381 7795	Diseases of bees	

		06051 Nice CEDEX			
France	15	**FAO Collaborating Centre** Station de Pathologie Porcine (S.P.P.) les Croix B.P. 9, 22440 Ploufragan	Tel: 96941090 Telex: 950743 Fax: 9694487	Diseases of pigs	
	16	**FAO Collaborating Centre** Station Régionale de Pathologie Caprine (S.R.P.C.) B.P 3081, 79012 Niort CEDEX	Tel.: 49796128 Telex: 799000 PATHOCAP+	Disease of goats	
	17	WHO Collaborating Centre for Research and Management in Zoonoses Control Centre National d'Etudes sur la Rage et la Pathologie des Animaux Sauvages, B.P. No. 9, 54220 Malzéville	Tel.: 16 8329 26 08 Fax: 83 29 33 13 Cable: CNER 54220 MALZEVILLE	Zoonoses	
	18	Institut Pasteur 25, rue du Docteur Roux 75724 Paris CEDEX 15	Telex: PASTEUR 250609 F Fax. 40 56 01 25		
	18A	WHO Collaborating Centre for Infections *Yersinia pseudotuberculosis* Unite d'Ecologie Bactérienne	Tel: (1) 45 68 80 00	Yersiniosis	
	18B	FAO/WHO Collaborating Centre for the	Tel.: (1) 45 68 83 37	Leptospirosi	

		Epidemiology of Leptospirosis Laboratoire des Leptospiroses			
	18C	WHO Collaborating Centre for Reference and Research on Rabies	Tel.:(1) 45 68 87 55	Rabies	
Germany	19	**FAO Reference Laboratory** Institut für Virologie Tierärizlichen Hochschule Bischofsholer Damm, 15, Hanover	Tel.: (0511)856-8842 (0511)856-8850 Telex: 922034 TI HOD	Hog cholera	EEC/Austria/Norway/ Sweden/Switzerland
	20	WHO Collaborating Centre for Research and Training in Veterinary public health School of Veterinary Medicine Bischofsholer Damm 15 3000 Hanover 1	Tel.: (0511)865-8768 Telex: 922034 TIHO D	Veterinary Public Health	
	21	WHO Collaborating Centre for Reference, Institute Medical Virology and Research on Neurological Zoonoses Immunology, University of Essen, Hufelandstrasse 5 D-4300 Essen 1	Tel.: 793414 Telex: 8579573 KLIES D Fax: 49201 793414	Zoonoses	
	22	WHO Collaborating Centre for Rabies Surveillance and Research, Rabies	Tel.: (7071)6031/32/33 Telex: 07 262 846	Rabies	

		Laboratory, Federal Research Institute for Animal Virus Diseases Postfach 1149, D-74 Tübingen	BFA D		
	23	WHO Collaborating Centre for Collection and Evaluation of Data on Comparative Virology, Data Centre Institute of Medical Microbiology Infectious and Epidemic Diseases Veterinary Faculty, University of Munich, Veterinärstrasse 13 D-8000, Munich 22	Tel.: (089)21802155	Comparative virology	
	24	FAO/WHO Collaborating Centre of Research and Training in Food Hygiene and Zoonoses Institute of Veterinary Medicine (Robert von Ostertag Institute) Postfach 330013, Thielallee 88/92 D-1000 Berlin 33	Tel.: (030) 83 08 0 83 08-2225 83 08-2235 Telex: 1 84 016 BGESA D	Food hygiene and zoonoses	
	25	Mediterranean Zoonoses Control Centre	Tel.: 6380.163 Telex: 222670 MZCC	Zoonoses	

Greece		PO Box 3904 10210 Athens Greece	GR Fax. 6380 163		
Hungary	26	**FAO Reference Laboratory** Central Veterinary Institute 1149 Budapest, Tàbornok Street, Postafiók 2	Tel.: 840-100 Telex: 224430 aegit h	Newcastle disease, fowl plague	European socialist countries: Balkans/Cyprus/Greece
India	27	WHO Collaborating Centre for Training in Rabies Vaccine Production and Quality Control, Rabies Division Pasteur Institute of India Coonoor - 643 103 (Nilgiris)	Tel.: 6308 Coonoor Telex: 853203 P.I. Coonoor	Rabies	
	28	WHO Collaborating Centre for Rabies Epidemiology, National Institute of Communicable Diseases 22, Shamnath Marg Post Box 1492, Delhi - 110054		Rabies	
	29A	WHO/FAO Collaborating Centre for Research and Training en Veterinary Public Health Indian Veterinary Institute Modular Laboratory	Tel.: 72965 Telex: 577 205 IVRI IN Cable: VETEX	Veterinary public health	

		Building Izatnagar 243122, Bareilly (U.P.)			
	29B	FAO Collaborating Centre	Tel.: 74069	Diseases of buffaloes	
Iran	30	WHO Collaborating Centre for Reference, Rabies Department (Research and Production) and Research on Rabies, Pasteur Institute of Iran, Pasteur Avenue Teheran	Tel.: 559871.4 Telex: 214265 IPIN Cables: Institut Pasteur IRAN	Rabies	
Israel	31	WHO/FAO Collaborating Centre for Epidemiology of Leptospirosis Israel Institute of Biological Research, PO Box 19 Ness Ziona 70450	Tel.: 08 481 Telex: 361 933 (IIBR-IL) Fax: 08 475594	Leptospirosis	
	32	WHO/FAO Collaborating Centre for Research and Training in Veterinary Public Health Laboratorio di Parassitologia Istituto Superiore di Sanità Viale Regina Elena 299, Rome	Tel.: (06) 4957364 (06) 4990, ext992/314 Telex: 610071 ISTISAN I Cables: ISTISAN Rome Fax. 49 57 621	Veterinary public health	
	33	**FAO Collaborating Centre** Istituto Zooprofilattico	Tel.:(0861)3321 Fax: 0861 332251	Veterinary epidemiology and informatics	

Italy		Sperimentale dell' Abruzzo e del Molise Via Campo Boario, 64100 Teramo			
	34	**FAO Collaborating Centre** Istituto Zooprofilattico Sperimentale del Lazio e della Toscana Via Appia Nuova 1411 Roma Capannelle 00178	Tel.:(06) 7240124	Diseases of horses	
	35	**FAO Collaborating Centre** Istituto Zooprofilattico Sperimentale dell' Umbria e delle Marche Penugia	Tel.: (075) 35143	Enzootic bovine leucosis	
	36	**FAO Collaborating Centre** Gruppo Romano Virologia Oncologica Institute of Virology University of Rome Viale di Porta Tiburtina 28 00185 Rome	Tel.:(06) 4462306 Telex UNISAP 620564 Fax: (06) 4452824	Biotechnology (information network on molecular virology)	
Kenya	37	**FAO Reference Laboratory** Kenya Agricultural Research Institute National Veterinary Research Centre PO Box Kabete, Nairobi	Tel.: 02-5922 31-5 Telex: 25287 KARI H9KE Fax: 333491 Nairobi	Lumpy skin disease, sheep pox, goat pox, bluetongue, Nairobi sheep disease	Africa

	38	**FAO Reference Laboratory** Veterinary Research Department K.A.R.I., Muguga PO Box 32, Kikuyu	Tel.: (283)2106,2107 Cable: VETRESORG KIKUYU	Rinderpest, *peste des petits ruminants,* contagious bovine pleuropneumonia, contagious caprine pleuropneumonia	Africa
Netherlands	39	WHO/FAO Collaborating Centre for Reference and Research on Leptospirosis Royal Tropical Institute, Laboratory for Tropical Hygiene, Meibergdreef 39 1150 AZ Amsterdam 20	Tel.: 56654 38 Telex: 15080 KIT NL Cable: INTROPEN	Leptospirosis	
Panama	40	**FAO Reference Laboratory** Comisión Panamá-Estados Unidos Prevención Fiebre Aftosa (COPFA) Apartado 327, Panamá 1	Tel.: 63-6022	Vesicular diseases	American countries free of FMD
Poland	41	**FAO Collaborating Centre** State Veterinary Institute (Instytut Weterynarii w Pulawach) Al. Partyzantów 57, 24-100 Pulawy	Tel.: 3051 Telex: 0642401	Chemical antibiotc residues, Toxicology	
	42	**FAO Reference Laboratory** Laboratoire national de	Tel.: (320) 211275 215146	Rinderpest, *peste des petits ruminants*, sheep	Africa

Senegal		l'élevage et de recherches vétérinaires B.P. 2052, Dakar		pox, lumpy skin disease, African horse sickness, African swine fever, Newcastle disease, contagious bovine pleuropneumonia, haemorrhagic septicaemia	
Spain	43	**FAO Reference Laboratory** Departamento de Virologia Instituto Nacional de Investigaciones Agrarias Calle de José Abascal 56 Madrid	Tel.: 91-4423199 4422256 Telex: 48989E	African swine fever	Europe/Africa/Asia
Sri Lanka	44	**FAO Reference Laboratory** Veterinary Research Institute Peradeniya	Tel.: (08) 8311	Haemorrhagic septicaemia	APHCA countries
Thailand	45	**FAO Reference Laboratory** Foot-and-Mouth Disease Centre Pak Chong/contact through Director Gen. Dept. of Livestock Development Phya Thai Road, Bangkok		Foot-and-mouth disease	Southeast Asia
	46	WHO Collaborating Centre for Rabies Diagnosis, Research and Training Virus Research Institute		Rabies	

		Department of Medical Sciences Ministry of Public Health 88/7 Soi Bumrasnaradura Hospital Tivanonda Road. Nonthaburi 11000			
	47	**FAO Reference Laboratory** Institute for Animal Disease Research (AFRC), Pirbright Working, Surrey	Tel.: 0483 232441-7 Telex: 859137 AVRIG Fax: 0483 232448	Foot-and-mouth disease	World
	48	**FAO Reference Laboratory** Central Veterinary Laboratory New Haw, Weybridge, Surrey	Tel.: 09323 41111 Telex: 262318 VETWEY Fax: 09323 47046	Newcastle disease, fowl plague, veterinary diagnosis (FAO Collaborating Centre)	Africa/Europe/Near East
	49	FAO/WHO Collaborating Centre for Reference and Research on Brucellosis Biological Products and Brucella Department, Central Veterinary Laboratory, Ministry of Agriculture Fisheries and Food, New Haw Weybridge, Surrey KT 15 3NB	Tel.: 09323 41 111 Telex: 262318 VETWEY Fax.: 09323 47046	Brucellosis	
United	50	**FAO Collaborating Centre** Poultry Disease	Tel.: 09323-41111 Telex: 262318 VET	Poultry diseases	

Kingdom		Department Central Veterinary Laboratory New Haw, Weybridge Surrey KT 15 3NB	WEY Fax. 09323-47046		
	51	WHO/FAO Collaborating Centre for Reference and Research on Mycoplasmas, Mycoplasma Reference Facility, NCTC, Central Public Health Laboratory, 61, Colindale Avenue London NW9 5HT	Telex: 895 (DEFEND G)3942	Mycoplasma	
	52	WHO/FAO Collaborating Centre for Research and Reference on Leptospirosis, Leptospira Reference Laboratory, Public Health Laboratory County Hospital, Hereford HR1 1ER	Tel.: (0432) 277707	Leptospirosis	
	53	**FAO Reference Laboratory** British Museum (Natural History) Department of Entomology, Cromwel Road London, SW7 5BD	Tel.: 01-9389451 Fax: 01-9388937	Screwworm *(Cochliomyla hominivorax)*	World
	54	**FAO Collaborating Centre** Centre for Medicine, Royal (Dick) School of Tropical	Tel.: (031) 4452001/4452036 Telex: 727442	Veterinary diagnosis (tropical veterinary medicine)	

		Veterinary Veterinary Studies, Easter Bush Roslin, EH25 9RG Midlothian Scotland	UNIVED G Cable: BUSHVET EDINBURGH G		
	55	**FAO Reference Laboratory** National Veterinary Services Laboratory, PO Box 848 Ames, Iowa, USA	Tel.: (515) 239 Fax: 09323 47046-8266	Newcastle disease fowl plague,	Central- America North
	56	**FAO Reference Laboratory** Federal Animal Disease Diagnostic Laboratory, APHIS PO Box 848 Greenport, Long Island, New York	Tel.: (510) 323-2500 Telex: 595053 USDA X	African swine fever Contagious bovine pleuropneumonia, contagious caprine pleuropneumonia, African horse sickness contagious agalactia, sheep pox, goat pox, bluetongue, bovine malignant catarrh Vesicular diseases	World Western hemisphere Central-North America
	57	FAO/WHO Collaborating Centre for the Epidemiology of Leptospirosis, Bacterial Diseases Division, Centre for Infectious Public Health Service, Department of Health and Human	Tel.: (404) 639 1050 Telex: 549571 CDC ATL Fax: 404 639 3296	Leptospirosis	

		Services, Atlanta Georgia 30333			
	58	WHO Reference Rabies Laboratory and Collaborating Centre for Research on Rabies, Centre for Disease Control Mailstop G-33 Building 15 - SSB611 Atlanta, Georgia 30333,	Tel.: (404) 639 1050 Telex: 549571 CDC ATL Fax: 404 639 3296	Rabies	
United States of America	59	**FAO Collaborating Centre** Laboratory of Molecular Biology for Tropical Diseases, Office of Research, School of Veterinary Medicine, University of California Davis, California 95616	Tel.: (916) 383 Fax: (916) 752-28015178	Biotechnology (transfer) technology	
	60	WHO Collaborating Centre for Studies on file Ecology of Influenza in Animals, Division of Virology and Molecular Biology, St June Children's Research Hospital, PO Box 318,332 North Lauderdale, Memphis, TN 38101	Tel.: (901) 522 0300	Influenza	
	61	WHO Collaborating Centre for Reference and	Tel: (215) 898 3703/4	Rabies	

	Research on Rabies, The Wistar Institute of Anatomy and Biology 36th Street at Spruce Philadelphia, PA 19104	Telex: 710 6700328 Fax: 215 898 3995		
62	WHO Collaborating Centre for Graduate Residence and Programme on International Veterinary public health, School of Veterinary Medicine North Carolina State University, 4700 Hillsborough Street at William Moore Drive Raleigh, NC 27606	Tel.: (919) 829 4200	Veterinary public health	
63	WHO Collaborating Centre for Reference and Research in Simian Virus, Department of Microbiology, Southwest Foundation for Research and Education, PO Box 28147 8848 West Commerce Street San Antonio, TX 78284		Simian viruses	
64	WHO Collaborating Centre for tropical Veterinary		Veterinary public health	

		Public earth Programme and Training, School of Veterinary Medicine, Tuskegee Institute Tuskegee, Alabama 36088			
	65	WHO Collaborating Centre for Veterinary Public Health Systems Research and Analysis, Tufts University School of Veterinary Medicine, Department of Medicine Section of International Veterinary Medicine, 200 Westboro Road North Grafton, Massachusetts 01536	Tel.: (508)839-5302 Fax: (508) 839 2953	Veterinary public health	
Uruguay	66	**FAO Reference Laboratory** Centro de Veterinarias Investigaciones "Miguel C. Rubino" Casilla de Correo 6577, Pando Montevideo	Tel: 0392-2101 Fax: 0392-5202	Anaplasmosis babesiosis,	Argentina/Brazil/Chile/ Paraguay/Uruguay
	67	WHO Collaborating Centre for the Epidemiology of Leptospirosis Republics Leptospirosis Laboratory,	Tel.: 193 30 01	Leptospirosis	

		Gamaleja Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the USSR, Gamaleja Street 18 Moscow 1 23098			
Union of Soviet Socialist	68	WHO Collaborating Centre for Research and Reference on Brucellosis, Brucellosis Laboratory, Gamaleja Institute of Epidemiology and Microbiology, Academy of Medical Sciences of the USSR, Gamaleja Street 18, Moscow 123098	Tel.: 19 30 01	Brucellosis	
	69	WHO Collaborating Centre for Reference and Research on Rabies Institute of Poliomyelitis and Viral Encephalitides, Academy of Medical Sciences of the USSR, Kievskoe chaussee 27 km, Moscow V-27		Rabies	
	70	WHO Collaborating Centre for Veterinary Sanitation	Tel.: 203 59 17 Telex. 41 258	Food hygiene/zoonoses	

		and Food Hygiene, All-Union Research Institute for Veterinary Sanitation Zvenigorodskoe chaussee h. 5 Moscow 123022			

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Annex 4: International reporting procedures

OIE List A and List B diseases (as at 31 December 1990)

List A

Foot-and-mouth disease
Vesicular stomatitis
Swine vesicular disease
Rinderpest
Peste des petits ruminants
Contagious bovine pleuropneumonia
Lumpy skin disease
Rift valley fever

Bluetongue
Sheep pox and goat pox
African horse sickness
African swine fever
Hog cholera
Teschen disease
Fowl plague
Newcastle disease

List B

Multiple species diseases
Anthrax
Aujeszky's disease
Echinococcosis/hydatidosis
Heartwater
Leptospirosis
Q fever
Rabies
Paratuberculosis
Screwworm (Cochliomyia hominivorax)

Bee diseases
Acariasis of bees
American foul brood
European foul brood
Nosematosis of bees
Varroasis

Cattle diseases

Anaplasmosis
Babesiosis
Bovine brucellosis (B. abortus)
Bovine genital campylobacteriosis
Bovine tuberculosis
Cysticercosis (C. bovis)
Dermatophilosis
Enzootic bovine leukosis
Haemorrhagic septicaemia
Infectious bovine rhinotracheitis (IBR/IPV)
Theileriosis
Trichomoniasis
Trypanosomiasis
Bovine malignant catarrh
Bovine spongiform encephalopathy (BSE)

Crustacean diseases
Baculovirosis (B. monodon)
Baculovirosis (B. penaei)
Baculoviral midgut gland necrosis
Infectious hypodermal and haematopoietic necrosis

Fish diseases
Viral haemorrhagic septicaemia
Spring viraemia of carp
Infectious haematopoietic necrosis
Salmonid herpesviros is (type 2)
Renibacteriosis (R. salmoninarum)
Ictalurid herpesvirosis (type 1)
Enzootic haematopoietic necrosis

Edwardsiellosis (E. ictaluri)

Horse diseases
Contagious equine metritis
Dourine
Epizootic lymphangitis
Equine encephalomyelitis
Equine infectious anaemia
Equine influenza (virus type A)
Equine piroplasmosis
Equine rhinopneumonitis
Glanders
Horse pox
Infectious arteritis of horses
Japanese encephalitis
Horse mange
Salmonellosis (S. abortus equi)
Surra
Venezuelan equine encephalomyelitis

Lagomorph diseases
Myxomatosis
Tularaemia
Viral haemorrhagic disease of rabbits

Mollusc diseases
Bonamiosis
Haplosporidiosis
Perkinosis
Marteiliosis

Iridovirosis

Pig diseases
Atrophic rhinitis
Cysticercosis (C. cellulosae)
Porcine brucellosis (B. suis)
Transmissible gastroenteritis of pigs
Trichinellosis

Poultry diseases
Avian infectious bronchitis
Avian infectious laryngotracheitis
Avian tuberculosis
Duck virus hepatitis
Duck virus enteritis (duck plague)
Fowl cholera Fowl pox Fowl typhoid (S. gallinarum)
Infectious bursar disease (Gumboro disease)
Marek's disease
Mycoplasmosis (M. gallisepticum)
Psittacosis and ornithosis
Pullorum disease (S. pullorum)

Sheep and goat diseases
Brucella ovis infection
Caprine and ovine brucellosis (B. melitensis)
Caprine arthritis/encephalitis
Contagious agalactia
Contagious caprine pleuropneumonia
Enzootic abortion of ewes
Pulmonary adenomatosis

Nairobi sheep disease
Salmonellosis (S. abortus ovis)
Scrapie
Maedi-Visna

Diseases of other animal species
Leishmaniasis

Note: The lists are amended periodically and published in the OIE Code and Bulletins and the FAO/WHO/OIE Animal Health Yearbook.

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Annex 5: Contents of the emergency operations manual (set of documents)

Control centres management documents

- ***National control centre***
- ***(Regional or provincial control centre)***
- ***Local (field) control centre***

- ***Principles of control centre management: Sections and their function Chain of responsibility Lines of communication Role descriptions Job cards Resource management (labour, equipment, stores, finance)***

- ***Information management: Disease information Office systems Public and internal information***

- ***Legislation***

- ***Movement control***

- ***Industry cooperation (producer, processor, transport, wholesale, retail)***

- ***Training programmes, schedules and methods***

- ***Skills registers***

- ***Administration procedures***

Operational procedures documents

- ***Valuation and compensation***
- ***Destruction of animals***
- ***Disposal of products, materials and wastes***
- ***Decontamination Vaccination***
- ***Movement control and security***
- ***Vector control Mapping***
- ***Public relations and the media***
- ***Wildlife control***
- ***Communications technology***

Risk enterprise documents

- ***Abattoirs***
- ***Milk processors***
- ***Feedlots***

The manual should provide all details of the methods selected to control each disease beginning with information on the disease itself.

Nature of the disease

- ***Aetiology, clinical signs***
- ***Susceptible species***
- ***Diagnostic criteria***
- ***Resistance and immunity***
- ***Epidemiology:***

Incubation period

Modes of transmission

Factors influencing transmission and persistence of agent in:

-vectors live animals (recovered and unapparent cases)
-carcasses (death from infection and slaughtered)
-environment, vehicles, containers
-products, by-products, waste (raw and processed)
-effects of decomposition
-disinfectants

-special considerations

Principles of control

- ***Methods to prevent spread***
- ***Methods to eliminate pathogen***
- ***Slaughter and disposal of animals***

Lists of names, addresses, contact points and/or telephone numbers of all those persons who may be required to help impose movement control may include:

- ***Local and area police***
- ***Livestock officers***
- ***Animal sellers or agents***
- ***Animal product plants (abattoirs, milk factories and egg stores, etc.)***
- ***Municipal or village authorities***
- ***Transport companies***
- ***National border control authorities***
- ***Leaders of farmers cooperatives or groups***

Copies of relevant legislation should include:

- ***the statutes (acts) that provide veterinary officers with legal authority for disease control and related activities (especially emergency powers)***

- ***subordinate and supporting regulations***

- ***multiple copies of all those forms required to give legal authority to a field officer's instructions to restrict movement***

- ***particular quarantines of animals, farms, enterprises, stockyards and areas, etc.***

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Annex 6: International and regional organizations

International organizations

Food and Agriculture Organization (FAO)

FAO is the United Nations agency responsible for agricultural development and food production. Within the Agriculture Department, the Animal Production and Health Division (AGA), deals with livestock development. It includes the Animal Health Service (AGAH), whose main role is to assist member countries in the control of animal diseases with the objective of improving livestock production as an integral component of general social, economic and agricultural development. The highest priority is given to developing countries, particularly those in Africa. This assistance is provided through FAO Regular Programme activities or FAO-operated field projects funded by various agencies, including the FAO Technical Cooperation Programme (TCP).

The assistance of the AGAH Regular Programme concerns a great variety of activities, such as expert consultations,

individual consultancies, research contracts, technical publications, training/education, provision of technical advice and international coordination. This covers many technical aspects, including the development of veterinary personnel through veterinary education, strengthening of animal health services and infrastructures, development of diagnostic and vaccine production laboratories, improvement of legislation, information on animal diseases through the publication of the FAO/WHO/OIE Animal Health Yearbook and the economics of animal diseases.

Efforts have been undertaken to reinforce the network of reference laboratories and collaborating centres for specific diseases and other animal health problems of international importance and to promote the application of biotechnology, particularly for animal disease diagnosis and vaccine production.

In addition, special programmes are being implemented in cooperation with other relevant organizations to control major animal diseases such as foot-and-mouth disease, rinderpest, trypanosomiasis, tick-borne diseases or such emergency diseases as African swine fever, Rift Valley fever and screwworm. Recently AGAH launched a new programme dealing with helminth parasitoses and other non-infectious diseases, such as nutritional, reproduction, genetic diseases, toxicoses, environmental and hygienic deficiencies, etc., which cause enormous losses in quantity and quality of food of animal origin.

AGAH is also responsible for technical backstopping of field projects such as specific veterinary projects or projects having animal health components at the national, subregional or regional levels. These projects of different duration in almost 100 countries have a total budget of about US$100 million from different sources: United Nations Development Programme (UNDP); Government Cooperative Programmes (GCP); FAO Technical Cooperation Programme (TCP) and others; United Nations Capital Development Fund (UNO); Unilateral Trust Fund (UTF), etc. At the end of 1989, AGAH was involved in 209 projects of which 148 in operation and 19 in pipeline were under AGAH as leading service. In these FAO field projects, 54 international long-term experts, 12 associate professional officers and about 50 short-term consultants were working together with their rational counterparts in 1989.

Other FAO units are also involved in the animal health programme: the Animal Production Service (AGAP) for nutrition, reproduction and genetic aspects; the Meat and Dairy Service (AGAM) for food hygiene; the Joint FAO/International Atomic Energy Agency Division (AGE) for nuclear techniques in agriculture; the Food Policy and Nutrition Division (ESN) for food quality (Codex Alimentarius); and the regional offices for collaboration with member countries and regional

organizations.

The number of FAO member countries has reached 160, or almost all the countries in the world.

FAO: European Commission for the Control of Foot-and-Mouth Disease

The Commission was founded in 1954 in response to the widespread epidemics of foot-and-mouth disease (FMD) in Europe in the early 1950s. By 1988, 27 European countries were members of the Commission.

The Commission is an autonomous body within FAO, with its headquarters in Rome. Among the Commission's major functions and duties are to collect and disseminate information on FMD outbreaks and to help member countries diagnose, control and prevent the disease. It registers available virus stocks for use in vaccine production and monitors the evolution of FMD, especially in regions from which the disease could spread to Europe.

The Commission meets every two years to review progress, decide on future activities and elect an executive committee. It works in close collaboration with FAO, OIE, Pan American Centre for FMD Control, the European Economic Community and the World Reference Laboratory, Pirbright, United Kingdom, which was established in 1957.

A research group was set up in 1956. It studies and reports to the Commission on problems in the fields of diagnosis, virus characterization, epidemiology, vaccine production and security requirements, etc.

Since the Commission was founded, the incidence of FMD in Europe has dramatically declined from 900 000 cases in 1951-53 to nil in 1990. This illustrates the benefits to be gained from active collaboration between countries in a region to combat a highly infectious disease.

World Health Organization (WHO)

In most WHO member countries, the public health significance of zoonoses increases in correlation with the density of the animal population, the degree of urbanization, the industrialization of husbandry and the international trade in animals and animal products. The following diseases receive particular attention: rabies, enteric bacterial zoonoses, brucellosis and echinococcosis, as well as some infections of more regional and local importance, such as anthrax,

leptospirosis, equine encephalitis, Rift Valley fever and toxoplasmosis.

Emphasis is placed on the promotion of national and international programmes for the elimination of rabies in major urban areas and also its elimination in wildlife species in certain areas. The technology is available for ecological studies of reservoir animal species in order to carry out mass immunization and disease surveillance, and the managerial processes are well-defined.

The incidence of enteric bacterial zoonoses is increasing sharply because of the inadequacy of hygiene in the mass production and slaughter of food animals, particularly poultry. This negative trend is being partly counteracted by research into and the development of new technologies for eliminating infection and microbial and parasitic contamination in primary animal production. These new technologies should at the same time help remedy the negative effects of antibiotics on resistance patterns in microorganisms, as well as decrease environmental pollution, by reducing the need for antibiotics used in animal husbandry.

In all areas of the zoonoses programme WHO cooperates closely with animal health services. Although the number of veterinarians is approaching target levels, or even exceeding them in most developing countries, there are few schemes for specialization and continuing education. The neglect of this basic need in national services calls into question the possibility of achieving lasting results through technology transfer- a point that deserves the increasing attention of member countries and WHO.

National zoonoses control programmes are being supported through a range of technical approaches (e.g. preparation and distribution of guiding principles, promotion of research, information/technology transfer, personnel training and the mobilization of resources) in order to reduce the incidence and prevalence of zoonoses, with the ultimate aim of preventing these diseases in man.

Collaboration has been strengthened with FAO, the World Veterinary Association and its subsidiary specialized associations and the OIE to improve disease surveillance and control and to cooperate with member countries in developing national schemes for continuing veterinary education.

International Office of Epizootics (OIE)

The OIE currently incorporates 114 member countries from all continents. Its role is to organize intergovernmental cooperation in order to:

- ***prevent the spread of contagious diseases of animals;***
- ***assist the development of animal production through improved health information;***
- ***contribute to development by sharing scientific progress;***
- ***ensure that international trade in animals and animal products is governed by technically justified health conditions;***
- ***provide national veterinary services, which are the instrument of this cooperation with recommendations for operating efficiently.***

The OIE operates under an international committee that is formed by delegates from member countries. It meets once a year at the OIE headquarters in Paris.

The administrative commission, made up of the president of the international committee and eight other delegates from member countries represents the committee between annual meetings.

Five regional commissions have been set up to study specific problems of the following regions: Africa, America, Asia/Southwest Pacific, Europe, Near East. Regular conferences of the regional commissions are convened in alternate years in a country of the particular region.

The scientific support of the organization is ensured by specialist commissions and working groups, which are as follows:

- ***Standards Commission***
- ***International Animal Health Code Commission***
- ***Commission for FMD and Other Epizootics***

- ***Fish Diseases Commission (including molluscs and crustaceans)***
- ***Veterinary Drug Registration***
- ***Biotechnology***
- ***System of Information***

Scientific symposiums or seminars are organized whenever it appears useful to update knowledge on a specific subject.

Close relationships have been established between OIE and other international organizations dealing with animal health matters, especially FAO, WHO and IICA (Inter-American Institute for Cooperation on Agriculture).

World Veterinary Association (WVA)

WVA was founded in 1959 as a continuation of the Permanent Committee for International Veterinary Congresses.

Aims: Unify the veterinary profession throughout the world by providing a central link for national associations; organize and hold congresses; promote all branches of veterinary science by all appropriate means; help improve veterinary education; promote the standing of the profession; and establish relations with organizations whose interests are related to the purposes of the association.

Structure: Congress (every four years), permanent committee elects president and vice-presidents who, with the secretary-treasurer, constitute the executive bureau.

Activities: Exchange of information on matters of veterinary interest; collection and distribution of information on films; and establishment of a uniform nomenclature.

Publications. Informative Bulletin of the WVA (quarterly); World Catalogue of Veterinary Films Video Tapes.

Members: National, associate, affiliated and honorary; national members (national organizations or groups of national organizations) in 72 countries.

Associate members: 18.

Selected regional organizations

Asia and the Pacific

Animal Production and Health Commission (APHCA). The APHCA has been operational since 1975, with its headquarters at the FAO regional office in Bangkok. Its overall objective is to create a common forum for developing strategies to solve important problems of livestock agriculture, based on the principles of "collective self-reliance" and "mutual assistance" or the concept of Technical Cooperation among Developing Countries (TCDC).

The APHCA collects animal disease information on a regular basis, which it compiles and disseminates to all member countries as the FAO/APHCA Animal Information Services on a monthly as well as a quarterly basis. Reports on any unexpected outbreaks of emergency diseases such as rinderpest and FMD in the region, once received from the APHCA permanent delegate (usually the Chief Veterinary Officer) of the country, are quickly forwarded to all concerned countries.

The APHCA also operates the APHCA Vaccine Bank. During each annual session of APHCA, donor member countries (all developing countries) pledge to reserve locally produced vaccines, which are ready for supply in case of an emergency request from other member countries. During 1990, India, Indonesia and Sri Lanka pledged the supply of 140 000 doses of FMD vaccine (monovalent basis), while Bangladesh, India and Pakistan offered to supply a total of 110 000 doses of rinderpest tissue culture vaccine. Bangladesh and Thailand also reserve duck plague vaccine (100 000 doses) for emergencies in member countries.

Association of South East Asian Nations (ASEAN). ASEAN is a regional economic body consisting of six Southeast Asian countries (Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand). Through its Technical Committee on Food, Agriculture and Fisheries (ASEAN-COFAF), it has established a mechanism to endorse the disease-free status of a member country or, as is often the case, a territory of a country. For example, declaration of FMD-free status is very important to promote livestock trade in the region. However, declaration by a country and its acceptance by other countries may be different matters. International organizations such as FAO and OIE have no mandate to endorse a country's disease-free status. In this regard, ASEAN-COFAF's action is significant. Upon the request of a

member country, ASEAN-COFAF sends to the country a survey mission consisting of senior veterinary officers from each ASEAN member country. The FAO regional office, on request from ASEAN-COFAF, may send one expert as a member of the survey team. Based on the recommendation of the survey mission, ASEAN as a whole endorses a member country's disease status at its agriculture minister's level. In the past, some parts of territories of Malaysia and the Philippines have been endorsed as FMD-free by ASEAN.

Africa

Inter-African Bureau of Animal Resources (IBAR). The most important organization dealing with livestock in Africa is the Inter-African Bureau of Animal Resources. Its headquarters is in Nairobi, Kenya. IBAR is a technical branch of the Organization of African Unity (OAU).

IBAR periodically issues Bulletin of Animal Health and Production, which contains technical and scientific articles concerning disease control, research and animal production. It also issues monthly animal health statistics giving the status of the major contagious animal diseases in Africa, accompanied by information leaflets briefing professionals on various selected topics.

Every two years IBAR organizes a meeting of the African ministers in charge of livestock production through the General Secretariat of OAU. As well, it sponsors the International Scientific Council for Trypanosomiasis Research and Control.

At present IBAR is coordinating the Pan-African Rinderpest Campaign (PARC), which aims to eradicate rinderpest in Africa.

Subregional intergovernmental organizations. There are not less than ten subregional intergovernmental organizations in Africa that at least partly deal with livestock issues. One example is the Cattle and Meat Economic Community based in Ouagadougou, Burkina Faso, which comprises Benin, Burkina Faso, Côte d'Ivoire, the Niger and Togo.

Latin America and the Caribbean

Pan-American Health Organization (PAHO). PAHO supports the veterinary public health services concerning zoonoses and sanitary inspection of livestock and fishery products. Through the Pan-American Foot-and-Mouth Disease Center,

services such as training, distribution of standardized diagnostic reagents, identification of biological specimens, vaccine quality control and publication of standardized techniques are provided to the animal health services. The Pan-American Zoonoses Center provides reference services related to zoonoses.

Inter-American Institute for Cooperation on Agriculture (IICA). IICA has implemented an Animal Health and Plant Protection Programme, providing technical assistance to the veterinary services through regional mechanisms such as the Inter-American Laboratories Network, Animal and Plant Health Information and Monitoring Network, the Caribbean Animal and Plant Health Information Network and through national projects on those matters requested by the governments.

Regional Organization for Animal and Plant Health (OIRSA). OIRSA supports the veterinary service activities of Mexico and Central American countries through specific regional activities such as the Regional Programme for the Management and Control of the Africanized Bee and the Programme on Epidemiological Research on Blue Tongue Virus in the Region, as well as local disease-control activities requested by the governments.

Inter-American Cooperation Group on Animal Health (GICSA). Since 1984, all international organizations acting in support of the veterinary services on the American continents have held annual meetings of the Inter-American Cooperation Group on Animal Health (GICSA) in order to exchange information, avoid duplication and promote complementary support of specific activities. The GICSA comprises the Pan-American Health Organization, the Pan-American Zoonoses Center, the Pan-American Foot-and-Mouth Disease Center, the Food and Agriculture Organization of the United Nations, the Inter-American Institute for Cooperation in Agriculture, the International Office of Epizootics and the Regional Organization for Animal and Plant Health.

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