**Summary:** The Office International des Epizooties comprises 43 Member Countries in the African region. Reports on the above item were received from 23 of these, namely, Algeria, Angola, Benin, Botswana, Burkina Faso, Central African Republic, Eritrea, Ghana, Guinea, Kenya, Libya, Madagascar, Malawi, Mali, Morocco, Namibia, Senegal, South Africa, Swaziland, Tunisia, Zaire, Zaire, Zambia and Zimbabwe.

These reports were analysed taking three major criteria into consideration: location of Veterinary Public Health (VPH) responsibilities, scope of VPH activities, level of Veterinary Services/VPH collaboration with other sectors. Individual reports were reviewed to answer the following questions: Does a VPH unit exist and if so, where is it located? If not, what administrative structure(s) carries(y) out VPH activities, if any?; What is the scope of the responsibilities falling under VPH, whether delivered by a VPH unit or other structure(s)?; Have regular working relationships been established by the structure(s) in charge of VPH subjects with other structures, especially the Ministry of Health?

The conclusions drawn from the above analysis are the following:

- There is only a small number of countries with established VPH units, although the existence of a VPH unit is no guarantee that minimal VPH activities are carried out;

- A small number of countries have established regular and effective working relationships between Veterinary Services, VPH and other sectors;

- VPH responsibilities vary from country to country, but in most cases, they comprise two major components: major zoonoses surveillance/control and hygiene of food of animal origin, including food-borne zoonoses control. In a number of countries, however, post-mortem food hygiene/inspection is under the responsibility of the public health or local government sectors, whereas zoonoses control usually remains with Veterinary Services;

- National Veterinary Services in countries where such situations occur have initiated plans for the redefinition of the delineation of responsibilities between the veterinary and other sectors involved;

- In countries where VPH activities are very limited in scope, national Veterinary Services have elaborated a legislation to better define and broaden the role of veterinarians in public health;

- In some countries the veterinary profession, including its VPH component, are already adapting to the fast changing environment. Responsibilities are being transferred from the public to the private veterinary sector, in order to facilitate the redeployment of public health veterinarians and their further involvement in new or newer VPH activities.

A number of global changes will occur over the next 25 to 30 years, which will have a drastic impact, especially on professions involved in health matters. Physicians and veterinarians must consider these changes now, in order to determine the possible implications for their respective sectors and to define how best they should be adapted. The priority areas for an increased contribution of the veterinary profession to the betterment of human and animal health will obviously differ even more in the future between developing and developed countries. Animal diseases of economic importance, such as rinderpest and foot and mouth disease, as well as zoonoses prevention and control (with rabies, brucellosis and echinococcosis as priorities), will represent the major domains of veterinarians in the developing world for the next 15 to 20 years. An appropriate strategy to respond to human and animal health problems in an urban environment will need to be developed for cities of developing countries. Unplanned urbanisation and the associated lack or shortage of basic facilities will require special attention and innovative approaches. Comprehensive plans will need to be defined to reduce the rural-urban migration flow, in order to reverse the current and anticipated trend. The contribution of the profession may lie in improving rural employment and food availability through the promotion of animal production projects, in improving health through zoonoses control and reducing environmental pollution.
related to animal rearing. Further collaboration of the profession with other specialists in food technology development, food industry control and promotion of new production techniques at the primary production level will be required to ensure food protection, in order to respond to the needs of the increasing human population.

1. INTRODUCTION

The Office International des Epizooties comprises 43 Member Countries in the African region. Reports on the above item were received from 23 of these, namely, Algeria, Angola, Benin, Botswana, Burkina Faso, Central African Republic, Eritrea, Ghana, Guinea, Kenya, Libya, Madagascar, Malawi, Mali, Morocco, Namibia, Senegal, South Africa, Swaziland, Tunisia, Zaire, Zambia and Zimbabwe. Nine reports originated from southern African countries (Angola, Botswana, Madagascar, Malawi, Namibia, South Africa, Swaziland, Zambia and Zimbabwe), six from western African countries (Benin, Burkina Faso, Ghana, Guinea, Mali and Senegal), four from northern Africa (Algeria, Morocco, Libya and Tunisia), two from central Africa (Central African Republic and Zaire), and two from eastern Africa (Eritrea and Kenya).

According to the joint FAO1/WHO2 Expert Committee meeting held in 1974, Veterinary Public Health (VPH) is defined as a component of public health activities devoted to the application of professional veterinary skills, knowledge and resources to the protection and improvement of public health. In other terms, although it refers to one professional group, VPH encompasses all activities involving, directly or indirectly, animals or animal products and various domains of expertise, contributing to the improvement of public health. In order to achieve VPH objectives, the WHO experts stressed the need (a) for the establishment of a VPH unit staffed with public health veterinarians to deal primarily with the major VPH issues, such as zoonoses control and the protection of foods of animal origin, and (b) for close collaboration between the different professional groups, especially between veterinary and public health services, which can contribute to the goal of VPH.

2. REVIEW OF NATIONAL REPORTS

The national reports were analysed, taking three major criteria into consideration: location of VPH responsibilities, scope of VPH activities and level of collaboration with others.

Individual reports were reviewed to answer the following questions:

- Does a VPH unit exist, and if so, where is it located? If not, what administrative structure(s) carries(y) out VPH activities, if any?
- What is the scope of the responsibilities falling under VPH, whether delivered by a VPH unit or other structure(s)?
- Have regular working relationships been established by the structure(s) in charge of VPH subjects with other structures, especially the Ministry of Health?

A final paragraph was added, summarising various comments made in some reports on the current problems facing Veterinary Services and VPH, and possible solutions and orientations for the future.

2.1. Location of Veterinary Public Health responsibilities

Existing Veterinary Public Health structures

Four countries reported having a VPH structure within the Ministry of Agriculture/Veterinary Services, namely Burkina Faso, Eritrea, South Africa and Zimbabwe. In Burkina Faso, VPH is one of two subdivisions of the Animal Health Directorate. In Eritrea, Veterinary Services are part of the Animal Resources Department and are divided into two sections: Disease Prevention and Control, and VPH. In South Africa, VPH services fall under the National Department of Agriculture. In Zimbabwe, a VPH branch exits in all abattoirs for export.

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1 Food and Agriculture Organization of the United Nations
2 World Health Organization
Other veterinary structures responsible for Veterinary Public Health

In most other countries, it is considered that veterinarians working within different services under the Ministry of Agriculture contribute to the improvement of Public Health through their ongoing activities. The administrative structures carrying out VPH activities as defined above are usually located within the Ministry (or national department in South Africa) of Agriculture (Ministry of Rural Development and Environment in Mali). These activities are carried out by the Livestock Department/Directorate (e.g. Benin, Kenya, Morocco and Mali), or the Animal Health Department/Directorate (e.g. Libya). In Botswana, VPH activities are carried out by the Meat Hygiene and Quality Control section of the Department of Animal Health and Production. VPH responsibilities are often shared within a given Department/Directorate between its subdivisions dealing with animal health on the one hand and food hygiene/food protection on the other, as observed in Morocco and Tunisia.

Structures outside the Veterinary Services responsible for Veterinary Public Health

In a limited number of countries, some of the responsibilities that traditionally belong to Veterinary Services and fall within the VPH concept are carried out by the Ministry of Health and/or local governments (municipalities). This is the case in Zimbabwe where VPH issues (mainly inspection) related to food of animal origin for national consumption, remain within the Ministry of Health and Child Welfare. However, in this country, the registration of abattoirs/premises where food is prepared, as well as the inspection of meat and dairy products for exports, remain the responsibility of Veterinary Services. In Botswana, Zambia and Swaziland, with the exception of a limited number of slaughterhouses (mainly for export of beef), food inspection is carried out under the supervision of the Ministry of Health and local municipalities. In Ghana and Mali, inspection of food of animal origin and premises where they are prepared, is shared between the Ministry of Agriculture and the Ministry of Health. In Algeria, at municipality/communal level, food hygiene control is carried out by mixed units composed of veterinarians and physicians.

2.2 Scope of Veterinary Public Health responsibilities

Major Veterinary Public Health areas

Existing VPH structures (Burkina Faso, Eritrea, South Africa and Zimbabwe), although they carry the same name, do not have the same scope of responsibilities: in South Africa, VPH staff is mainly responsible for meat hygiene and, in Zimbabwe, VPH branches deal only with the control of meat and dairy products for export. In Burkina Faso and Eritrea, the VPH section is responsible for the quality control/inspection of food of animal origin and animal by-products, zoonoses surveillance and control (especially bovine tuberculosis, brucellosis and rabies in Eritrea), as well as control of entry of live animals and animal products into the country. In countries without established VPH units/branches, different levels of Veterinary Services’ contribution to Public Health preservation/improvement or VPH have also been reported.

Among the 23 countries that responded, three categories can be identified when considering VPH areas receiving major attention:

(1) A category including the majority of countries that responded (i.e. Algeria, Angola, Burkina Faso, Central African Republic, Eritrea, Ghana, Guinea, Kenya, Libya, Malawi, Mali, Morocco, Senegal, Tunisia, Zaire and Zambia) where VPH responsibilities are essentially twofold and cover zoonoses (surveillance, prevention and control) and food (of animal origin, including seafood) hygiene. Many of these countries reported that veterinary activities, which aim at increasing the supply of safe food of animal origin and animal by-products and at controlling major zoonoses, represented the essential part of the veterinary contribution to the Ministry of Health protection/improvement. The major zoonotic diseases most often mentioned were rabies, brucellosis, bovine tuberculosis, anthrax, cysticercosis and hydatidosis. Some countries (e.g. Algeria, Ghana, Libya, Mali, Morocco and Zambia) reported having ongoing national programmes for the control/elimination of some of these diseases, in most instances brucellosis, bovine tuberculosis and rabies. In parts of Africa, especially eastern Africa, other zoonotic diseases are considered important, such as Rift Valley fever and trypanosomiasis. Food hygiene and food-borne disease prevention activities are in many countries mainly carried out at slaughterhouse level. Some national Veterinary Services (e.g. Algeria, Guinea, Morocco and Central African Republic) are responsible for the control of the entire feed-food chain, i.e. from farm to plate, whereas in some others (Zambia and Swaziland), food inspection after slaughter and especially at retail level does not fall under national Veterinary Services.
A category including countries (i.e. Benin, Botswana, Madagascar, Namibia, Zimbabwe and South Africa) that placed emphasis on food hygiene, mainly through ante- and post-mortem inspection at abattoir level. Many of these countries are major exporters of red meat, especially beef, to the European Union.

A small category (i.e. Swaziland) where VPH responsibilities are confined to the control of some zoonoses (e.g. rabies and cysticercosis). As mentioned above, with the exception of one slaughterhouse for export, food inspection in Swaziland is carried out under the supervision of the Ministry of Health and local municipalities.

Other areas within Veterinary Public Health scope

A small number of countries mentioned other VPH fields, such as research on animal diseases and zoonoses (e.g. Mali), epidemiological studies and risk assessment for possible common sources of disease in humans and animals (e.g. Morocco), education/training of certain professional groups, such as farmers and the public at large, on zoonoses (e.g. Benin and Ghana), prevention of environmental risks in relation to the animal industry and derived pollutants (e.g. Kenya, Madagascar, Malawi and Morocco), control of animal feed safety (e.g. Morocco) and legislation drafting (e.g. Mali and Zimbabwe). Some countries (Malawi and Central African Republic) have incorporated all veterinary activities aimed at improving animal production, thereby increasing the supply of food of animal origin in their understanding of VPH responsibilities.

2.3. Collaboration with other institutional sectors/groups

Some reports indicated links of collaboration with veterinary diagnosis and research laboratories, as well as teaching institutions, at both central and local levels. In Morocco, a National Laboratory for Zoonoses and Epidemiological Surveys has been established on the premises of the National Agronomic and Veterinary School in Rabat.

Relatively few countries (i.e. Algeria, Eritrea, Kenya, Libya, Mali, Morocco, Swaziland and Zimbabwe) mentioned the existence of formal or informal links with administrative structures/institutions belonging to a ministry other than the Ministry of Agriculture. The report from Algeria indicated that interministerial committees for zoonoses control had been established by law at both central and peripheral (wilaya) levels. These committees, comprising representatives of the ministries of Agriculture, Public Health, Defence and Interior, as well as municipalities, are in charge of the elaboration, implementation, coordination and evaluation of zoonoses control activities. Veterinary Services in Mali reported collaborating with the Public Health Directorate of the Ministry of Health, especially its departments dealing with public hygiene/cleansing and epidemiology/disease prevention. In Mali, Veterinary Services have also established working relationships with the National Public Health laboratory and the school of Medicine and Pharmacy. In Eritrea, Veterinary Services collaborate with the Ministry of Health, as well as with local governments and municipalities. In the latter country, efforts are being made to establish interagency committees at all levels for zoonoses control. In Kenya, Veterinary Services have established close links with the Ministry of Health in the fields of rabies, hygiene of food products in relation to pesticide and drug residues and microbial contamination. Kenyan Veterinary Services also liaise with the Ministry of the Environment regarding pollution related to the animal industry.

In other countries reporting a link, collaboration seems to be restricted to the exchange of surveillance data for zoonoses control and prevention. As reported above for Algeria, Ghana and Mali, national Veterinary Services collaborate in the fields of food inspection with other services falling under the Ministry of Health and local governments. Conversely, in some countries, such as Zaire and Zimbabwe, mention is made of a conflict regarding the delineation of responsibilities between the Ministry of Agriculture and the Ministry of Health concerning VPH activities, especially food inspection.

2.4. Current problems and future developments

A number of important issues were raised in certain reports. They are the following:

Delineation of Veterinary Public Health responsibilities between Veterinary Services and other sectors

In some countries, mainly those where VPH activities are limited, such as Botswana (dealing essentially with the inspection of beef and beef products for export), Zimbabwe and Swaziland (where the role of Veterinary Services in food hygiene is restricted to food products for export or import), there is a perceived need to redefine the role of veterinarians in Public Health.
In Botswana and Zimbabwe, plans for a partial or complete transfer of food (of animal origin) inspection responsibilities from the Ministry of Health to Veterinary Services in the Ministry of Agriculture have been developed and proposed to their respective governments.

Public/private veterinary sector sharing of Veterinary Public Health responsibilities

Some countries (e.g. Burkina Faso, Morocco and Tunisia) have launched projects for the transfer of responsibilities from public to private veterinarians. This transfer involving individual treatments of sick animals and the medical prophylaxis of certain contagious diseases (e.g. FMD and sheep pox) from the public to the private veterinary sector, should facilitate the redeployment of public health veterinarians and their further involvement in other new or newer VPH activities. Morocco reported that this transfer allowed the national Veterinary Services to enter the final phase of national programmes for the elimination of rabies, brucellosis and tuberculosis. In addition, a few countries reported having plans for the transfer of some VPH responsibilities to private veterinarians (e.g. in rabies).

Multidisciplinary approach in Veterinary Public Health

The need for a multidisciplinary approach in the field of VPH was stressed in some reports (e.g. Ghana and South Africa). As indicated by South Africa, the current “approach to and delivery of veterinary public health services is characterized by a single and selective disciplinary approach, with the delivery of services by a fragmented and uncoordinated multitude of government agencies”. The South African report also underlined that the WHO definition of VPH "implies in many ways a carte blanche assignment to the veterinary and para-veterinary professions, but is also restrictive as it only implies the application of veterinary knowledge and skills to protect and improve human health without acknowledging the coordinated and integrated effort necessary from all related disciplines in a fast changing environment to achieve this goal.” Very few countries reported having established interministerial/interagency committees for the collegial planning and implementation of national VPH strategies. A small number of countries have established regular and effective working relationships between Veterinary Services and other sectors.

Adapting to a changing environment

The need for an adaptation of VPH and the veterinary profession as a whole to the fast changing environment was mentioned by Morocco and South Africa, i.e. regarding veterinary activities related to public hygiene, particularly food hygiene. Increasing human populations and the demand for food, growing urban centres, the continuous development of new animal production and food processing technologies, the constant emergence of new zoonoses and food-borne pathogens and the ever increasing movements of live animals, animal products and by-products, together with the new international trade agreement, require new VPH strategies and appropriately trained public health veterinarians.

Proposals

As a means to contribute to the promotion of VPH programmes, the Central African Republic proposed that fund agencies that have financed projects for the control of livestock diseases, such as rinderpest and CBPP, support proposals for the elimination of zoonotic diseases and other projects for the improvement of both human and animal health. Benin suggested the development and initiation in the shortest time possible of a joint OIE, OAU/IBAR, WHO and FAO regional plan for the promotion of VPH activities in Africa.

2.5. Conclusions

Some general conclusions can be drawn from the above analysis:

- There is only a small number of countries with established VPH units, although the existence of a VPH unit is no guarantee that minimal VPH activities are carried out;
- A small number of countries have established regular and effective working relationships between Veterinary Services, VPH and other sectors;
- VPH responsibilities vary from country to country, but in most cases, they comprise two major components: major zoonoses surveillance/control and hygiene of food of animal origin, including food-borne zoonoses control. In a number of countries, however, post-mortem food hygiene/inspection is under the responsibility of the public health or local government sectors, whereas zoonoses control usually remains with Veterinary

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3 Organisation of African Unity / Interafrican Bureau for Animal Resources
Services;

- National Veterinary Services in countries where such situations occur have initiated plans for the redefinition of the delineation of responsibilities between the veterinary and other sectors involved;
- In countries where VPH activities are very limited in scope, national Veterinary Services have elaborated a legislation to better define and broaden the role of veterinarians in public health;
- In some countries, the veterinary profession, including its VPH component, is adapting to the fast changing environment. Responsibilities are being transferred from the public to the private veterinary sector, in order to facilitate the redeployment of public health veterinarians and their further involvement in new or newer VPH activities.

3. FUTURE ORIENTATIONS FOR VETERINARY PUBLIC HEALTH

A number of global changes will occur over the next 25 to 30 years, which will have a drastic impact on most professional groups. Professions involved in health matters, especially physicians and veterinarians, must consider these changes now, in order to determine the possible implications for their respective sectors and to define how best they may be adapted to fulfil the expectations of their 'clients' (i.e. farmers and other partners in the animal industry, and consumers) and their 'employers' (i.e. public and private sectors).

A number of these changes are under way and their consequences are already visible. In two to three decades, these changes will be so important that failure to recognise them, or to respond to them, can have adverse consequences.

3.1. Foreseeable changes

Foreseeable changes that will have an impact on VPH activities are:

- The human population size, which is expected to double over the next 25 years;
- The proportion of people living in urban centres in developing countries, which will increase from an estimated 37% in 1990 to 52% of the total population of the developing world by 2020. In these cities, intrinsic population growth and rural-urban migration will favour unplanned urbanisation and its consequences, especially for the urban poor whose estimated number will reach 1 billion by the year 2000;
- Human disease patterns, which will be affected by high densities and movements of human populations within and between countries, as well as changes in lifestyles and food processing technologies. Health problems related to environment pollution will increase in both developing and developed countries;
- Animal disease patterns will be affected by changing land-use patterns, new farming practices, imports/exports of animals, animal products and by-products, as well as environmental contamination/pollution;
- Marked climatic changes consisting in an increase in temperature accompanied by modifications of environmental characteristics (water availability and nature/quantity of vegetal cover), which will occur over the next 50 to 60 years.
- Other more palpable global trends should also be mentioned. They are not related to climatic changes, human population increase, growing urbanisation or environmental degradation, but have had a more immediate impact on many Veterinary Services world-wide. They consist in moves towards increased decentralised decision-making and privatisation of these services as a means to increase efficacy and respond to the requirements of structural adjustment policies imposed by the overall economic crisis.

3.2. Impact of these changes on Veterinary Services and Veterinary Public Health

There is, comitantly in many countries, an increased recognition by governments and also by the general public of the fact that most of the functions of Veterinary Services aim at improving public health and well-being. In this respect, it is noteworthy that many zoonoses control programmes, even those with a significant impact on animal production (e.g. brucellosis, tuberculosis, cystic echinococcosis, etc.) find their main justification in the decrease in human morbidity and mortality, together with the concomitant savings for the public health sector deriving from their successful implementation. It can be foreseen that increased recognition of the role of public heath veterinarians will be accompanied by increased expectations from all partners in the animal industry and the general public.

With regard to public veterinary staff reduction and confrontation with a growing demand for services, one should consider how the current and future functions of Veterinary Services will be fulfilled and what kind of goods delivery systems will have to be designed for tomorrow. Some of the concepts that may help to answer this question are 'Community-owned programmes', 'shared resources and responsibilities', or 'multi-focal leadership'. The last concept encompasses both necessary multidisciplinary technical collaboration and essential intra- and
intersectoral programmatic cooperation, with a recognition of the fact that leadership should be shared with no further dominant/dominated relationships for the ultimate achievement of a common objective.

Success or failure will ultimately lie in the ability to translate the concepts into activities and to subsequently put them into practice.

The consequences of these foreseeable global changes on the 'traditional' missions of public health veterinarians need to be identified, especially the priorities for future intervention in the fields of zoonoses prevention, control and surveillance, food-borne infections and intoxications, as well as the future contribution of the veterinary profession towards tackling these changes.

3.3. Zoonoses prevention, control and surveillance

Although the situation will have improved in the developed world, zoonoses prevention and control will remain an area of major concern in most developing countries. Diseases such as brucellosis, rabies and bovine tuberculosis, should be brought under control during the first decade of the second millennium, but this implies a constant effort over the next 15 to 20 years. In addition, as the trade of animal products and the movements of people intensify, the risk of introduction/reintroduction of certain diseases into a country is increased. In fact, over the past five years, a number of diseases have emerged either as new pathological entities or as already known agents appearing in areas or species where they had not been previously reported. As such problems are likely to re-occur, animal diseases and zoonoses surveillance will need to be reinforced and maintained at country level and internationally.

Urbanisation and emerging zoonoses

Since more and more people will be residing in urban centres, all the activities of veterinary public health will have to be reinforced in these areas, i.e. zoonoses prevention and control, welfare of pet animal populations and management of domestic animals, as well as pet food production and protection. This will give rise to a new subject area called 'urban veterinary medicine' dealing with all these aspects and which will need to be developed in operational terms in many cities of both the developing and developed world.

Vector-borne diseases may also be increasingly reported in urban zones, especially when the reservoir or amplification hosts are maintained in these areas or their close periphery (for example Rift Valley fever in cattle, visceral leishmaniasis in dogs, Japanese encephalitis in pigs and haemorrhagic fever with renal syndrome in rats).

Water management projects and diseases

In rural areas where major water management projects will have been undertaken, in order to respond to the increased demand for arable land and permanent water supply, new hazards can be expected, especially in the form of water and vector-borne diseases, such as schistosomiasis and Rift Valley fever.

3.4. Food production and protection

One of the obvious consequences of the doubling of the human population is the need for adequate quantities of food and water of acceptable quality. Satisfying increasing food needs requires higher yields per harvest and more crops per year, since shortages of arable land restrict the possibilities of expanding cultivated areas in most parts of the world. In addition, as more and more rural families who, at present, survive on subsistence agriculture, move to urban centres, an increasing proportion of the world's population will become dependent upon others for its supply of food. Urban populations will, therefore, become increasingly dependent - even in developing countries - initially on traditional foods and then, as needs rapidly increase, on industrially processed foods. Increasing yields and crops will require more pesticides and fertilisers which, in turn, will increase environmental pollution. Livestock production will need to be assessed in terms of its cost-effectiveness in a given environment compared with other methods of protein production. Small versus large animal rearing will also have to be looked at carefully, in order to define the best techniques for satisfying the demand for animal proteins, as well as the impact of the various species and production techniques (intensive versus extensive production techniques on a given 'ecosystem'). The potential consequences on the environment and the possible alternatives, such as biotechnologies, will certainly become an essential research area for the future.

3.5. Future roles of Veterinary Services / Veterinary Public Health in response to global changes

Satisfying the needs of populations in the developing world will require considerable financial resources, especially for basic needs, such as the provision of permanent safe water and ensuring food resources, and the
necessity to ensure planned urbanisation with minimum facilities, such as water supply and sewage systems.

Although this is beyond the scope of this presentation, a decline in the pace of economic growth is currently observed, which may have long-lasting effects on many countries and also reduce the resources for international development activities in the human and animal health sectors. The health sector and Veterinary Services in most countries will thus be confronted with difficulties in financing ever increasing needs with fewer and fewer resources. This will require new approaches to programme implementation and especially to vaccine or drug delivery, with an ever increasing involvement of community volunteers and animal owners. The sharing of human and other resources (e.g. human and animal health workers and cold chain equipment) will become a necessity in most countries if health services delivery costs (whether for humans or animals) are to be kept to a minimum.

The priority areas for an increased contribution of the veterinary profession to the betterment of human and animal health will obviously differ even more in the future between developing and developed countries. Animal diseases of economic importance, such as rinderpest and foot and mouth disease, as well as zoonoses prevention and control (with rabies, brucellosis and echinococcosis as priorities), will represent the major domains of veterinarians in the developing world for the next 15 to 20 years. Therefore:

- A strategy to respond to human and animal health problems in an urban environment will need to be developed for cities of both developed and developing countries. Unplanned urbanisation and the associated lack or shortage of basic facilities will require special attention and innovative approaches.
- Comprehensive plans will need to be defined to reduce the rural-urban migration flow, in order to reverse the current and anticipated trend. The contribution of the profession may lie in improving rural employment and food availability through the promotion of animal production projects, in improving health through zoonoses control and reducing environmental pollution related to animal rearing.
- Further collaboration of the profession with other specialists in food technology development, food industry control and promotion of new production techniques at the primary production level will be required to ensure food protection, in order to respond to the needs of the world's population.

Technical excellence will need to be acquired in all these fields, as well as in the prevention and control of vector and water-borne diseases likely to occur in association with water management projects in hot countries. An efficient surveillance system for detecting emerging animal and zoonotic diseases will need to be set up world-wide with specialised laboratories being established in tropical countries. Environmental pollution, especially in relation to negative effects associated with agricultural and animal rearing practices and environmental protection, will become a major area of concern for the veterinary profession.

All these missions will require a multidisciplinary approach and the veterinary profession should not isolate itself but rather be ready to mobilise human resources outside of its own domain of expertise. In a given country, a good understanding of the requirements of all the sectors of the 'food industry', public health services, as well as the significance of national economics, sociological and cultural mutations and politics will be necessary, in order to identify the problems and their solutions in relation to the overall economic and social development.