The OIE world animal disease information system

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Summary: The priority task of international collection and dissemination of information concerning diseases of animals by the OIE has three purposes: to alert countries threatened by an epizootic, to strengthen international cooperation on the control of animal diseases, and to facilitate international trade in animals and animal products.

In order to improve the quantity and quality of information received, the OIE has organised seminars on the reporting of diseases of animals in most regions of the world. The authors show that these seminars have had very positive results.

To achieve further progress, it is indispensable for every country to have a truly operational national system for animal health surveillance. Consequently, some technical assistance projects have been undertaken, beginning with Asia and Oceania, to examine the difficulties encountered by certain countries and to propose solutions.

Activities of the various specialist commissions of the OIE have also led to improvement in the quality of information, particularly by defining, with greater precision, the concepts currently employed in connexion with diseases of animals (e.g. infection, disease, infected zone), and by standardising methods of diagnosis and of the preparation of biological products for veterinary use.

Finally, a concise account is given of the development at the OIE Headquarters of an animal disease database, its mode of operation and various improvements which could be introduced to better satisfy the needs of Member Countries.

KEYWORDS: Animal diseases - Database - Epidemiological surveillance - Epizootics - Information systems - International cooperation - International trade - Publications - Standardisation - Veterinary services.

INTRODUCTION

Since 1981, the International Office of Epizootics (OIE) has made steady progress in modernising the international system for reporting diseases of animals, which is a priority task laid down in the Internal Statutes attached to the International Agreement of 25 January 1924. Throughout this period, the OIE has aimed to respond better to the needs of Member Countries for animal health information.

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Having identified the principal obstacles to the development of this new system, the OIE established a long-term action plan to overcome them. New developments have affected this programme, but it is now possible to review the progress achieved.

This review will analyse the imperfections of the system as it now operates and outline the effort which is still required to correct them.

PURPOSES OF THE INTERNATIONAL SYSTEM FOR REPORTING ANIMAL DISEASES

It must be made clear that the system set up by the OIE is not an end in itself, but is responsive to the needs of national economies.

The system has three purposes:

Alerting countries threatened by an epizootic

The risk of an epizootic spreading from another country worries many governments, as well as farmers themselves. Such an event could adversely affect the livestock industry of a country, or could at least reverse the gains in productivity in this sector achieved after years of work and investment.

Diseases are spread in many ways, some of them insidious; the speed of transmission can be so rapid that the veterinary service in charge of protecting the health of the national herd may be unable to act effectively in the absence of almost immediate notification of an epizootic in an adjoining country, or in a country from which animals or animal products are imported.

Of course, the relevant information can be communicated directly from the affected country to the countries at risk, and such a procedure should be encouraged, for it reinforces the mutual confidence which needs to be established between countries in animal health matters. However, if this were the only procedure used, certain destinations would be overlooked and information arriving from various sources, often separated by prolonged intervals of time, would be difficult to analyse. In addition, international coordination of measures aimed at eradicating the epizootic would be impossible.

It is therefore evident that the OIE plays an important role in centralising, processing and disseminating information on the worldwide course of the major diseases of animals.

International cooperation

Thanks to the synthesis of information sent to the OIE, it is possible to assess, not just intuitively, but qualitatively and quantitatively, problems which may have either regional or international effects.

Viral haemorrhagic disease of rabbits is a good example in this respect. It was first detected (at the end of 1988) in the German Democratic Republic, the Federal Republic of Germany, Italy, France and Spain, and then (during 1989) in Mexico, Switzerland, Yugoslavia, Austria, Poland, Portugal, Czechoslovakia, Tunisia, the
Republic of Korea and Lebanon, followed by Denmark at the start of 1990. This was a new pathological entity, widespread and of unknown aetiology.

These facts led the International Committee of the OIE to add this disease to List B at the 57th General Session. Following this decision, the Commission for Foot and Mouth Disease and Other Epizootics brought together the leading experts on this subject, so that they could communicate the results of their research and make proposals for health precautions to be observed in international trade of live rabbits and rabbit meat (13).

When international scientific cooperation is used in this way to confront an entirely new problem, the hope of acquiring knowledge about the causal agent, its transmission and the most suitable prophylactic precautions is significantly enhanced.

In other situations, international cooperation has extended beyond the scientific realm. This happened in 1989 when African horse sickness, following a small outbreak in 1988, reappeared at high incidence in southern Spain. From experience of events of similar seriousness in other parts of the world, the OIE was able to warn Member Countries of the potential for imminent spread, confirmed by the occurrence of the disease in Portugal and, a few days later, in Morocco. The OIE convened an emergency meeting of representatives from African and European countries infected or at risk (12) in order to provide an overall view of the situation and promote the coordination of national eradication programmes. International cooperation was thus established at the level of disease control strategy, and the anticipated beneficial results soon became evident: no further case of African horse sickness has appeared in the three affected countries since November 1989.

Finally, the marked deterioration of the rinderpest situation, reported at the beginning of the eighties in countries of East and West Africa, led to the implementation of the Pan-African Rinderpest Campaign (PARC), the strategy of which has been clearly described by Cheneau (5). The OIE was able to call attention to the urgency of the situation through information available at the Organisation, and thereby played a decisive role in mobilising the international aid required to implement this vaccination campaign. The success of PARC was, and still is evident, even though some outbreaks occurred in certain countries of East Africa during 1989. Another example of the mobilisation of international funds will be mentioned later.

Ease of international trade

The ease with which international trade in animals and animal products can be effected depends on the availability of scientifically sound information concerning:

- epidemiology of diseases recognised as important for trade;

- the relative risk of transmission of these diseases through different products (live animals, fresh meat, milk, semen, embryos, etc.);

- biological and economic consequences of the introduction of a pathogen into a country which is free from this particular pathogen.

Knowledge of the geographical distribution and evolution of the major diseases throughout the world is fundamental, for it enables importing countries to protect themselves by requiring the exporting country to apply the most appropriate preventive measures.
In this respect the existence of a veterinary service, capable of providing constant surveillance of the health of the national herd and supplying up-to-date information about it to the international community, is a prerequisite for every country which seeks to encourage exports of livestock and livestock products. To strengthen the credibility of a veterinary service in other countries, surveillance should be conducted not only on the end products for export but on all the elements of the production chain, as well.

Through its various publications devoted to animal health information (particularly *World Animal Health*) (14), the OIE offers Member Countries an exceptional opportunity to demonstrate the efficacy of their veterinary services and, through annual reports, to provide information on their ongoing activities. However, any shortcoming in this direction, or any inconsistency in data between one year and another, is bound to cast suspicion on any isolated declaration which the authorities of a Member Country might make in order to promote exports. Such a declaration might appear to have been made to suit the circumstance without necessarily having a sound scientific basis.

While the circulation of animal health information is an essential condition for improving international trade, it also has a profound effect on the nature of health precautions imposed by importing countries on those which export. In this respect it is obvious that a failure to impose any health restrictions, or even veterinary inspection at frontiers, exposes the national herd to the diseases occurring in other countries.

Such an attitude is far from being theoretical, for there are situations in the world where trade occurs across frontiers without any control. This may be due to a failure of a veterinary service to recognise the risks to the national herd under its protection or, more often, to a lack of resources for conducting indispensable verification, particularly the provision of veterinary certificates, at frontier posts. In this context, any serious incident arising, or appearing to arise, from imports could lead to abrupt and lasting interruption of the trade in question, as well as to serious misunderstandings between the veterinary services of the countries involved.

By contrast, the attitude which prohibits all imports from a country in which a given disease occurs, irrespective of its severity and extent, creates major difficulties. The supply of certain foods available to consumers may become inadequate and their market price too high, or genetic progress may be compromised, despite the utility of such progress for the development of animal production. Application of a policy of zero risk means that developing countries, which are generally better able to produce animals and animal products, are unable to reach the solvent markets of importing countries.

The *International Animal Health Code*, which Blajan (3) has described in detail, should be used systematically as a reference source for problems encountered by Member Countries. Unfortunately, certain countries fail to consult it adequately and require statements on international animal health certificates which are not based on current scientific knowledge. Other countries may refer explicitly to the *Code* but adopt only those measures which best serve national self-interest, without taking into account the situation in their own livestock or considering alternative procedures mentioned in the *Code* which would provide similar protection against the introduction of a given disease.
At this point it should be recalled that the import of valuable "disease-free" animals, which are then placed in contact with locally-reared animals adapted to the domestic microbial environment, may be a failure. Such newly-introduced animals, purchased because of their high production potential, have had to overcome the stresses of prolonged transport and adapt to a new climate, different husbandry practices and diet. They are therefore more exposed to pathogens which can result in serious disorders; those that survive rarely meet the expectations for which they were imported. Only extensive knowledge of national husbandry systems and their health environment can avert this type of problem, and veterinary services should not overlook these aspects, which extend beyond the range of monofactorial diseases.

The use of relevant animal disease information must not lead to the systematic penalisation of a reporting country. Although the deterioration of the health status of a country justifies a redefinition of the requirements which such a country must fulfil if it wishes to export, the new requirements should be neither excessive nor unreasonably long, provided the necessary control measures are applied with adequate thoroughness. Otherwise, the exporting country will be tempted to forego official declaration, or to delay appropriate action in the hope that the incident will be overcome before its occurrence is made public.

Except in retrospect, which would negate the reason for its existence, no alert system can function under such conditions; moreover, the danger exists that a generalised suspicion could be installed between countries, opening the way for uncontrolled rumours. This would obviously upset the harmonious development of international trade; one can only hope that countries will strictly adhere to the recommendations of the Code, actively participate in its development and improvement, and rigorously observe the arrangements for reporting diseases of animals.

**DEVELOPMENT OF THE OIE SYSTEM FOR REPORTING ANIMAL DISEASES**

The inadequacies of various national animal health surveillance systems have been examined by Blajan and Welte (4), while Blajan (2) has described in detail the different factors involved in the effective functioning of such a system.

Clearly, the OIE reporting system for animal diseases cannot achieve the desired effects unless it is regularly supplied with information by the veterinary services of all Member Countries.

In addition, evaluation of the information transmitted by these countries to the Central Bureau presupposes the precise definition of their nature, knowledge of the statistical treatments applied and an analysis of the crude results thus obtained.

Aware as it is of the requirements of each of these aspects, the OIE has taken steps to help both Member Countries and its internal mechanism, notably in regard to the Information Service.
Establishment of the OIE reporting system

The primary objective of the OIE has been to make information available on its new reporting system, which was established by implementing the recommendations of an expert group (7, 8, 9, 10). For this purpose, after a pilot seminar held in Paris and attended by representatives of 12 Member Countries, the OIE has organised several regional seminars (see Table I), usually in association with other international organisations.

### Table I

**OIE regional seminars on animal disease reporting**

<table>
<thead>
<tr>
<th>Region</th>
<th>Year</th>
<th>Venue</th>
<th>No. of countries participating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America</td>
<td>1985</td>
<td>Buenos Aires</td>
<td>9 (Argentina)</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>1986</td>
<td>Bratislava</td>
<td>8 (Czechoslovakia)</td>
</tr>
<tr>
<td>Asia</td>
<td>1987</td>
<td>Bangkok</td>
<td>11 (Thailand)</td>
</tr>
<tr>
<td>French-speaking Africa</td>
<td>1987</td>
<td>Saly Portudal</td>
<td>15 (Senegal)</td>
</tr>
<tr>
<td>Asia/Oceania</td>
<td>1988</td>
<td>Manila</td>
<td>22 (Philippines)</td>
</tr>
<tr>
<td>English-speaking Africa</td>
<td>1989</td>
<td>Nairobi</td>
<td>12 (Kenya)</td>
</tr>
</tbody>
</table>

Seventy-three countries (63 of which are OIE members), mainly of Asia and Oceania, have taken part in these seminars.

It is difficult to gauge the impact of these seminars on the reporting of animal diseases to the OIE. However, there are two ways of assessing this impact: by examining the transmission of alert messages by Member Countries, and by the regularity of despatch of the standard monthly report (form S.R.-3) by each country. As far as alert messages are concerned, there has been a definite increase in the number of countries using form S.R.-1 (the standard form for initial reporting of an event of major epidemiological importance) (Table II). On the other hand, difficulties appear in the monitoring of primary outbreaks. During 1987 and 1988, only half the number of S.R.-1 forms was followed by a S.R.-2 (standard form for supplying additional information on the outcome of the incident reported on S.R.-1 and control measures applied). The situation improved during 1989, when an increase of alert messages was followed by a higher percentage of S.R.-2 forms.

During 1989, the OIE received emergency messages from 32 countries. Table III compares the number of countries which used form S.R.-1 and those which sent a non-standard message, according to whether or not they took part in a seminar.
TABLE II
Use of standard forms to send alert messages to the OIE

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of countries sending alert message</th>
<th>No. of countries using S.R.-1 form</th>
<th>Percentage</th>
<th>Percentage of S.R.-1 followed by at least one S.R.-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>24</td>
<td>11</td>
<td>46</td>
<td>50</td>
</tr>
<tr>
<td>1988</td>
<td>24</td>
<td>17</td>
<td>71</td>
<td>37</td>
</tr>
<tr>
<td>1989</td>
<td>32</td>
<td>19</td>
<td>59</td>
<td>64</td>
</tr>
</tbody>
</table>

Although the sample of countries used in these tables was not entirely representative, the figures show that the action taken has had very positive results; this fact encourages promoting further use of the international system for reporting animal diseases.

This conclusion is strengthened if one considers the extent to which form S.R.-3 (Fig. 1) has been used. Between 1982 and 1986, the new system for reporting animal diseases was tested with the aid of an increasing number of volunteer countries (12 in 1982, 19 in 1983, 24 in 1985 and 32 in 1986). To facilitate data analysis, a country is considered to provide fairly complete monthly information over a year (form S.R.-3 or the national monthly equivalent) if the missing information does not extend beyond three months. Results thus calculated show that 84% of volunteer countries regularly transmitted their monthly information during 1986.

From 1986, the new reporting system was extended to all Member Countries; the number of countries fulfilling the criteria also increased steadily until 1988.

TABLE III
Use of S.R.-1 form by countries sending emergency notification to the OIE in 1989, according to whether or not the country was represented at a seminar

<table>
<thead>
<tr>
<th>Seminar participation</th>
<th>Use of S.R.-1</th>
<th>Total/country</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>-</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>No seminar participation</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Total/country</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
Table IV depicts the situation during 1988. Among the 34 countries which supplied incomplete monthly information, 20 were in Africa and 11 in Asia/Oceania (including five Middle Eastern countries). The incomplete data for 1989 show that many of these countries have adopted the OIE monthly reporting system.

**TABLE IV**

*Despatch of monthly information by Member Countries in 1988*

<table>
<thead>
<tr>
<th>Information</th>
<th>Complete or nearly complete</th>
<th>Incomplete</th>
<th>Total/country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seminar participation</td>
<td>48</td>
<td>16</td>
<td>64</td>
</tr>
<tr>
<td>No seminar</td>
<td>33</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>Total/country</td>
<td>81</td>
<td>34</td>
<td>115*</td>
</tr>
</tbody>
</table>

* This includes monthly information sent to the OIE by some countries or territories which are not members.

It would therefore appear that the reporting system has been successful. Nevertheless, there are still certain problems to be overcome:

- In the first place, the percentage of S.R.-3 forms received late is high (over 60%), so that the “Outbreaks during preceding months” section of the OIE Bulletin is larger than the section “Outbreaks occurring during the month”. Putting back the acceptance
date for information to the latter section would cause an impossible delay, as the *Bulletin* is currently published about two months after the month to which it refers. Detailed study has shown that the percentage of forms S.R.-3 received late exceeds 75% if European countries are excluded. There are two possible explanations of this:

*a) delay in transmitting the actual documents, linked to the mode of despatch, which is mainly by regular post;*

*b) the inability of certain countries, lacking both a well-structured national network for epidemiological surveillance and modern means of communication, to send the relevant information to the OIE within the time specified.*

—in addition, not all the incidents requiring immediate information are reported to the OIE, as a reading of various journals and other veterinary publications will readily confirm. This applies particularly to diseases of List B, but is also true of diseases or syndromes of uncertain aetiology, involving infectious agents which are known for a long time but, for unclear reasons, give rise to atypical clinical signs or an atypical course (e.g. increased mortality); or the pathogen may be completely new, requiring exhaustive research to identify it. In the latter case, the dissemination of research information and findings through the offices of the OIE is very valuable from the epidemiological aspect, facilitating contacts between research teams working on the same subject.

The importance of annual reports on the health status of livestock in Member Countries should be stressed. They provide much information on activities of national veterinary services, the major animal health incidents during the year, the course of List B diseases and preventive measures adopted. The proportion of Member Countries submitting annual reports is shown in Fig. 2. This figure deals with reports for the year shown in the abscissa and received by April of the following year. The percentage exceeded 75% between 1982 and 1989, during which period the number of Member Countries increased from 103 to 114.

![Percentage of Member Countries submitting annual reports](image)
These annual reports are published in *World Animal Health* in such a way as to provide those engaged in making animal health decisions with available facts, notably by using a series of codes whose key is given at the front of the publication. Nevertheless, the list of codes needs to be revised to provide better information on the control measures adopted by each country for List B diseases.

**Improvement of national systems for animal health surveillance**

As mentioned above, certain countries encounter considerable difficulties in operating a national system for animal health surveillance. Countries in greatest need of improvement are those with the most limited resources, even for conducting fundamental activities which would improve the health status of their livestock, but the necessity of which they are unable to justify in the absence of information. There is no easy way to break this vicious circle. It is necessary to make a general assessment of the situation and to adopt the most appropriate solutions.

Activities undertaken since 1988 have responded to this preoccupation. Recognising the need to provide wide circulation of animal health information in Asia and Oceania in order to promote the development of livestock farming in these regions and to intensify intra-regional trade in animals and products of animal origin, the OIE and the Asian Development Bank (ADB) decided to collaborate in organising a seminar on the reporting of diseases of animals. Thanks to this collaboration, and particularly to the technical and financial support of the ADB, a seminar for the countries of this region was held in Manila (the Philippines) in November 1988.

This seminar resulted in significant proposals concerning the general organisation and functioning patterns of effective national surveillance systems, the introduction of which would benefit the intensification of production and trade in livestock products. These recommendations were sent to every country involved, and many of them have requested external technical assistance to improve their surveillance systems.

With ADB funds still available, a group of four experts was designated to visit the following countries: Bangladesh, Hong Kong, India, Indonesia, Malaysia, Nepal, Pakistan, Papua New Guinea, the Philippines, Taiwan R.O.C., Thailand and Vanuatu. These countries provide a good sample of the animal health services in the region; although the assessments for individual countries varied, the expert group was able to identify their common needs (1) and propose five types of national projects to meet these needs, estimating the funds necessary for each country.

In each case the projects involve:

- development of decentralised systems for recording herd productivity and health;
- creation or improvement of systems for surveillance of the principal diseases;
- installation of regular circuits for information exchange (in which abattoirs and dairies would participate) between owners of livestock and their advisers, and between centres for data processing and data analysis situated at the district, provincial and national levels;
- development of diagnostic services;
- appropriate training of persons in the various categories involved in processing and evaluating the information obtained.
As far as the major diseases are concerned, the experts found during their investigations that most national veterinary services emphasised eradication of those major diseases which involved a small number of outbreaks, as well as of those less spectacular diseases which had a considerable impact on the economy or on human health.

Discussions with the authorities in the countries visited showed that improvement in the availability of animal health information would result in much greater confidence between countries, thus favouring international trade in animals and in products of animal origin.

The experts also concluded that, whenever circumstances permitted, subregional cooperation should be developed within the framework of existing organisations, such as the Association of Southeast Asian Nations (ASEAN), the South Asian Association for Regional Cooperation (SAARC) and the South Pacific Commission (SPC).

At the final meeting of the expert mission, representatives of the ADB indicated that they would be prepared to include national animal health information system development projects in the dossiers of loans for livestock projects, and to provide their support for subregional activities along the lines proposed.

The OIE Regional Commission for Asia, the Far East and Oceania, meeting in Canberra (Australia) in October 1989, ratified the conclusions of the expert group and proposed a meeting of potential donor organisations which might contribute jointly to implementing the recommendations in the field.

Hence, the Manila seminar was the first step along the path to a general improvement of animal disease surveillance in Asia, the Far East and Oceania, accomplished by mobilising the energies and finances available. The expert mission which followed was able to identify precisely the different needs of the requesting countries and each action plan was accompanied by a financial evaluation. In January 1990, the OIE commenced the third phase of its development aid action by organising meetings at the level of each subregion in order to initiate subregional coordination projects between countries.

A similar approach might be adopted for other regions, such as Africa and South America. However, the specific features of the organisation, animal health situation and available financial resources of each region will have to be taken into account before launching new programmes aimed at responding to the needs of these regions.

Other OIE activities

The work of OIE Specialist Commissions

The principal obstacles to the adoption of a common language for information on diseases of animals have been outlined by Morris and Geering (6). To summarise, there are three kinds of difficulties:

- very often a distinction must be made between the infection and the disease;
- characterisation and nomenclature of infectious agents is not always precise;
- procedures adopted for recognising a country as free from a disease are generally defective.
Imprecision in each of these fields hampers the development of international trade in animals and products of animal origin. Therefore, every potential point of discussion, as well as the precautions to follow for international trade and the diagnostic techniques for the commodities exchanged, must be clarified.

The OIE health recommendations for trade are to be found in the *International Animal Health Code* (already cited). The Specialist Commission responsible for making and revising these recommendations concluded at meetings held at the end of 1989 and in early 1990 that it was necessary to improve the contents of the *Code* along the following lines:

- by creating a chapter in the *Code* for each disease of Lists A and B;
- by adopting the same presentation and the same vocabulary for each chapter, and, if necessary, introducing new definitions into the first part of the *Code*;
- by specifying the aetiology of each disease;
- by defining whenever possible what is meant by a disease-free country or zone and an infected zone;
- by taking into account, with minimum delay, new scientific knowledge about diagnosis, treatment, vaccination, etc.

To support this work, the International Animal Health Code Commission has the benefit of advice from three other specialist Commissions of the OIE:

- the Standards Commission
- the Fish Diseases Commission
- the Foot and Mouth Disease and Other Epizootics Commission.

The Standards Commission has been working since 1986 on a *Manual of Recommended Diagnostic Techniques and Requirements for Biological Products for Lists A and B Diseases*. This *Manual* supplements the *International Animal Health Code* by standardising diagnostic methods and tests for biological products for veterinary use, mentioned in the *Code*, and by providing the scientific basis of their use. It differs from existing monographs and books in that the individual chapters have been prepared by eminent world specialists and have been agreed upon by all Member Countries of the OIE.

Volume I of the *Manual*, published in 1989, contains general information together with monographs on the seven diseases of List A and 24 diseases of List B. Each disease has its own chapter with a list of references to the literature. Each monograph, designed to assist laboratory technicians, commences with a summary, describes a procedure for *in vitro* diagnosis and, if applicable, gives the requirements for biological products.

Volume II was published in 1990 and Volume III is scheduled for release in 1991. Members of the Standards Commission will have the additional task of specifying the conditions under which each diagnostic test is used (epidemiological context, individual or group diagnosis) and its interpretation (the threshold for a positive result).

The task of the Fish Diseases Commission is to examine scientific reports on the epidemiology, diagnosis and control of diseases of fish, molluscs and crustaceans.
It contributes to the work of the Code Commission by proposing a list of priority diseases and by recommending precautionary measures to avoid spreading diseases by international trade.

In August 1989, assisted by a group of experts, the Commission for Foot and Mouth Disease and Other Epizootics thoroughly examined surveillance techniques for rinderpest, to be applied in countries previously infected in order to verify that a country is free from both the disease and the infection (i.e. that there is no virus circulating among susceptible animals) as a result of implementation of control measures.

The report of this Commission (11) proposes recourse to concepts which are hardly novel from the scientific aspect (staged eradication, collecting samples for surveys), but which are not in sufficiently systematic use by countries to qualify them for the term "free from disease". It is suggested that assistance be requested from experts nominated by the OIE to verify the rinderpest situation in a given country; the principles elaborated for rinderpest could be adapted for other diseases.

Foot and mouth disease should be the next subject for this type of thorough examination. This disease sharply divides the world into two well-defined zones, one of countries which permit vaccination and the other of countries which forbid it. The effects of this situation on international trade are well-known (namely, with rare exceptions, the impossibility of countries which vaccinate to export meat or milk powder to countries which do not vaccinate); scientific justification of the health barriers in force is the source of significant disagreement between the two groups of countries.

This problem has been raised during several meetings of a special group of GATT (General Agreement on Tariffs and Trade), formed in order to negotiate, within the framework of the Uruguay Round, the conditions under which the General Agreement is applied to both animal health and plant health.

There can be no doubt that, owing particularly to the number of questions to resolve, this task will be even more difficult and prolonged than the rinderpest case; the OIE, however, will be provided a unique opportunity to prove its effectiveness, and to demonstrate again (if such be needed) that the OIE is the international reference organisation for all questions of animal health.

Modernisation of the OIE Central Bureau for processing animal health information

Since 1982, an OIE Specialist Group on Animal Health Information Systems has devoted considerable effort to choosing an automated data-processing system to suit the needs of the OIE (8).

With the adoption by Member Countries of the new animal disease reporting system (an expected result of regional seminars), as well as the addition of new Member Countries and the arrival at the Central Bureau of animal health information from non-Member Countries, the Organisation is faced with a steady increase in the amount of collected data. Under these conditions, the continued use of manual data processing has proved inappropriate.

The Group considered various solutions (using an external computer bureau, installing a mini-computer in the OIE) but finally recommended a cautious and sensible approach by using a micro-computer as a first step, and choosing software sufficiently flexible to permit subsequent expansion of the system.
In 1983, guidelines and specifications were drawn up for hardware and software to meet the general information needs of the OIE for both administrative and technical purposes. Consequently, the first step of the Information Department was the development of office automation.

A system capable of performing all the specified functions, consisting of personal computers connected to a central unit, was acquired in 1984. However, specific software for data processing was not obtained until October 1986, at which time the efficiency of the new equipment had still to be tested.

Experience has revealed that the data-processing and the word-processing software acquired in 1984 are incompatible, mainly due to the timing of print-outs. Information tasks have therefore been entrusted to another system capable of preparing the tables which appear in those OIE publications (Bulletin and World Animal Health) devoted to the animal health situation.

If imperfect, the present system satisfactorily accomplishes a major objective, that of facilitating the preparation of monthly and annual publications.

As for statistical analyses, the system makes possible relatively simple data searches by combining three fields (disease, country and date) and reproducing them in tables having up to 152 characters per line.

Because the file size is limited to just over 60,000 records, searches extending over several years are impossible to conduct. The file for S.R.-3 forms in 1989, for example, contains about 23,000 records; consequently, there is no feasible way to store together all records for more than two years.

However, if all Member Countries regularly sent the required monthly information, the S.R.-3 file would reach 40,000 records by the end of the year, and thereby render impossible the storing together of records for more than one year.

A simple calculation of the capacity of the database has shown that it would be impossible, within the present structure of hardware and programmes, to store monthly data for List A diseases if ten more diseases were to be added.

Such technical limitations are of minor importance in comparison with the fact that no information system can cope with the imprecision and contradictions in data which certain countries transmit to the Central Bureau at different times of the year, a problem well-recognised by the staff of the Information Department. A common failing is a discrepancy between the numbers of outbreaks given in monthly and annual reports. Of course, this is not very important in the case of a disease which is endemic to the country; it could, however, happen that a disease is reported as never having occurred, although its presence was reported during the five preceding years. If the country concerned fails to explain such a contradiction, the efficient management of information can be upset.

The regularity of notifications and the quality of data transmitted by countries are indispensable for the development of a truly sophisticated information tool by the OIE Central Bureau. This brings us back to problems, already mentioned, of improving national systems for surveillance of animal health, as well as to those regarding the conscientious reporting of diseases by each country.

These observations should not detract from the continuous modernisation procedure established at the OIE so as to respond in a more satisfactory way to the
needs of Member Countries. To this end, the next few months should be devoted to a thorough study of improvements to the database in order to develop a more productive tool capable of dealing with data for several years (ten hypothetically, to start), as well as to the feasibility of making an international service centre available to every veterinary service for retrieving selected information from the database. Data transmission by telephone could make Member Countries aware of the most recent and urgent messages arriving at the OIE without having to await the weekly *Disease Information*, which can take some time to arrive by post. Similarly, the information contained in annual reports could be made available immediately, from late February of each year, well before the distribution of provisional documents to the delegates of Member Countries participating in the General Session of the OIE International Committee in May, to be followed by publication in *World Animal Health* in August.

Innovations in this field should be adopted after mature reflection. They should, in fact, respond to real needs expressed by the veterinary services of Member Countries, taking into account their own technical and financial arrangements, and should at least start with a micro-computer linked to an international communications network.

In addition, the use of computers by the OIE for programmes which will undoubtedly become more and more complex means that the OIE will have to acquire technical advice of increasing complexity.

Owing to the probable increase in the volume of animal products traded internationally, the growing diversity of these products and the access of new countries to the international market, there can be no doubt that the demand for animal health information will continue to grow in the future.

The OIE must consequently prepare for the necessary changes in this field and begin as soon as possible a programme of reflection aided by the best information available from data-processing experts in Member Countries.

**CONCLUSION**

Development of the OIE World Information System during the past decade has brought substantial progress in the collection, processing and dissemination of animal health information.

Nevertheless, the operation of this system has revealed, to a greater extent than recognised hitherto, disparities between regions, or between countries of the same region, in the recording of basic data in the field.

The OIE has strongly encouraged countries to install an effective epidemiological surveillance system, and these efforts must continue.

The existence of this system makes it possible to identify priority programmes for controlling, and even eradicating, those diseases which place a limit on animal production. It is also important for strengthening international cooperation in the following aspects:

- the mobilisation of the international community against a given epizootic;
the implementation of the precautions needed to protect countries at risk;

- the sponsorship by the OIE of regional studies based on the national surveillance systems, which could forestall and control diseases of animals by improving epidemiological knowledge.

It should be mentioned that the diseases entered in OIE Lists A and B, which form the basis of the World Animal Health Information System, have been selected for priority attention because of their consequences on international trade. This fact justifies the special precautions taken by importing countries against these diseases. The OIE *International Animal Health Code*, which brings together recommendations agreed upon by the Member Countries of the Organisation, specifies these precautions.

For the purpose of application, the *Code* depends on the principle that a given country should adopt only those precautions which correspond to actual risk assessment.

In consequence, such precautions should not be used as a means for placing unjustified obstacles in the way of international trade. Again, it is necessary for exporting countries to have an information system capable of evaluating the risks and defining measures which do not hamper trade.

The *Code* has to be kept up to date in order to take into account the progress in epidemiology, diagnosis and prevention of animal diseases which form the scientific basis of the recommended precautions.

A thorough examination, in collaboration with Member Countries of the OIE, of carefully selected diseases could lead to better definition of the risks involved in the diseases of animals; in consequence, the existing divergences in risk estimation used by different countries or groups of countries could progressively be reduced.

**REFERENCES**


