

INNOVATIVE STRATEGIES FOR STRENGTHENING REGIONAL ANIMAL HEALTH NETWORKS

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Summary: *Epidemiological surveillance networks face numerous challenges: diversity of diseases, farming practices and environment; language barriers; heterogeneity of socioeconomic development levels, health infrastructure and laboratory and epidemiology capacities; disparate veterinary legislation and health policies; and an increasing lack of human and funding resources. These factors represent important constraints for the establishment of regional animal health networks, especially in the context of the emergence/re-emergence of diseases due to globalisation of trade, movement intensification (animals, humans, products) and environmental changes. As regional animal health networks generally aim to contribute to the harmonisation and reinforcement of animal disease surveillance and control activities in the countries of a region, these factors even challenge this objective.*

This report highlights the key factors that regional animal health networks need to consider to tackle these challenges, increase cost-efficiency and work towards ensuring network sustainability. Some examples of what is being done in this respect in the Caribbean will be used to show how these activities have contributed to the development of the Caribbean Animal Health Network, CaribVET.

Recommendations are given with a long-term vision of enhancement of veterinary services and cover the following: formalisation of the regional animal health network; official recognition by international organisations; synergistic interactions with animal health projects being conducted in the same region; the application of quality assurance principles to the management and coordination of regional networks; advocacy at the highest levels on network relevancy, impact and communication; and promotion of interaction between research, surveillance and capacity-building programmes.

Keywords: *Americas – capacity building – Caribbean – CaribVET – quality assurance – regional animal health network – research – surveillance – sustainability*

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1. Introduction

Globalisation of trade, intensification of animal and human movements, environmental and climatic changes as well as many other socioeconomic factors greatly influence the spread of pathogens and vectors, and have led to an acceleration of disease emergence/re-emergence throughout the world during the past 30 years. To better tackle diseases, and especially transboundary diseases, regional systems have been created in many parts of the world, with an increasing trend recently: RADISCON¹ and PACE² (in Africa in 1996 and 1999, respectively), SEACFMD³ (in South-East Asia in 1997), CaribVET⁴ (in the Caribbean in 2006), REMESA⁵ (in the Mediterranean region in 2009) and AnimalRisk (in the Indian Ocean zone in 2009), to cite but a few examples.

Regional animal health networks are supranational networks, defined by Dufour and Hendriks [3] as “networks of networks, referred to as systems, covering a geographical area larger than a country. These may be regional systems which involve several countries, or several regions in different countries which constitute a geographical or political unit; or international systems where the number of countries participating in surveillance is large, often spread over several continents, or where there is a lack of geographical continuity”.

In general, regional animal health networks aim to contribute to the harmonisation and reinforcement of national surveillance networks and to provide technical support for their development [3]. Whatever the extent of the geographical area covered by such regional networks, numerous challenges render their establishment and operation difficult, due to the diversity and specificity of each of the countries included — especially in terms of the languages spoken, socioeconomic development levels, health infrastructure, laboratory and epidemiology capacities, veterinary legislation and health policies, environment, farming practices, etc. [4].

Most regional animal health networks are set up because of short-term funding availability [3] and the common lack of the human and funding resources needed to conduct surveillance activities at a national level and to manage and conduct an efficient set of coordinated activities at regional level.

This report highlights the key factors that regional animal health networks need to consider to tackle these challenges, increase the cost-efficiency of their activities and ensure their sustainability. Some examples will be taken from what is being done in the Caribbean. We shall show how this work has contributed to the development and dynamism of the Caribbean Animal Health Network, CaribVET, and how a similar approach could be applied in other regions.

2. Formalisation of regional animal health networks

In the same way as national epidemiological surveillance networks, regional animal health networks should clearly describe their objectives, organisation and operation in a charter setting out clear rules and principles governing the composition, management, funding and coordination of the network. The existence of a formal charter will give the network a firm foundation and enable it to gather more financial resources and can be used to provide information on the network to members, countries and international organisations. It also provides transparency, an essential factor in ensuring mutual confidence between the network's numerous members and partners.

CaribVET developed a Charter which was endorsed in 2010 by the members of the CaribVET Steering Committee, comprising the Chief Veterinary officers (CVOs) of 32 Caribbean countries/territories and representatives of ten universities, research institutes, regional and international organisations and the regional veterinary association [6, 8]. It was then revised in 2012 to give the document a legal dimension: key principles are defined in 14 articles in an immutable first part; a second part details the organisation of CaribVET and is updated annually. The Charter is available in the three official languages (the languages most commonly spoken in the region) to facilitate the understanding and adoption of the Network's objectives and rules, and

1 RADISCON: Regional Animal Disease Surveillance and Control Network

2 PACE: Pan African Programme for the Control of Epizootics

3 SEACFMD: South-East Asia and China Foot and Mouth Disease Control Campaign

4 CaribVET: Caribbean Animal Health Network

5 REMESA: Mediterranean Network for Animal Health

is available on the CaribVET website (www.caribvet.net). All official activities of the network (steering committee, official documents) are conducted in the three official languages.

CaribVET's Charter gives the Network a legal structure, thereby facilitating the development of formal cooperation with international organisations. It is also expected to facilitate the process of seeking grant resources.

3. Official recognition by international organisations

The development of formal cooperation agreements with international organisations in the field of agriculture, animal health and veterinary public health is a general strategy intended to avoid duplication of work conducted in the region and encourage complementary activities. Such agreements also provide clear frameworks to develop joint activities (e.g. epidemiological training, laboratories, meetings), pool and share expertise, resources and tools, and impart standards, knowledge and guidelines. They also facilitate the coordination of activities, ensure better use of resources and open up new funding opportunities to conduct technical activities in the region.

CaribVET formalized a Letter of Understanding (LoU) with the World Organisation for Animal Health (OIE) in 2011 and is pursuing a similar initiative with the Food and Agriculture Organization of the United Nations (FAO). Other such initiatives may be developed with the Pan-American Health Organization (PAHO), the United States Department of Agriculture (USDA), the Inter American Institute for Cooperation on Agriculture (IICA) and other organisations, as deemed necessary.

The LoU between the OIE and CaribVET has enabled new forms of collaboration to be developed with the OIE, such as the development of a database of laboratories for the Americas, within the framework of the establishment of the Network of Laboratories of the Americas. In addition, the OIE PVS Tool to evaluate the performance of Veterinary Services and the PVS Gap Analysis Tool are promoted whenever an evaluation of national surveillance activities is conducted using CaribVET's Surveillance Network Assessment Tool (SNAT). Lastly, CaribVET is developing tools, databases, guidelines and protocols for the Caribbean region, complementary to those developed by the OIE for countries, which may be used, tailored and promoted for the benefit of other regions in the world through the OIE. Members of CaribVET that are OIE Reference Laboratories can also organise simulation exercises and interlaboratory assays for the regional network, in close liaison with the OIE.

Close collaboration between FAO and CaribVET, more particularly through the FAO Technical Cooperation Programme 'TCP/RLA/3306(D)' on H1N1 surveillance in the Caribbean and previously the highly pathogenic avian influenza (HPAI) TCP, has enabled co-funding of training workshops (on sampling and surveillance and on quality assurance and molecular diagnosis), physical and virtual meetings of the CaribVET Laboratory, Quality Assurance and Diagnosis Working Group and some other CaribVET activities (e.g. supply of diagnostic kits to laboratories willing to implement classical swine fever [CSF] diagnosis in countries at risk of CSF introduction from the Greater Antilles). In addition to the FAO, the involvement of several organisations has enabled or facilitated the organisation of other technical working group meetings and related activities, through co-funding with CIRAD¹: USDA-APHIS-IS² (with the VEP³ project, CaribVET Swine Diseases Working Group), PAHO (Veterinary Public Health Working Group) and CARICOM⁴ (meetings of the Steering Committee and Coordination Unit, for example).

The productions and outputs of CaribVET that have been developed for the Caribbean (diseases prioritisation tool, surveillance and emergency preparedness guidelines, databases (ISIDORE, TickINFO⁵, RESPANG⁶, CaribVET laboratory database) could be shared and further adapted for other regions with the help of international organisations involved in other regional animal health networks.

1 CIRAD: Agricultural Research Centre for International Development (France)
2 APHIS-IS: Animal and Plant Health Inspection Service – International Services
3 VEP: Veterinary Epidemiologist/Para-Epidemiologist
4 CARICOM: Caribbean Community
5 TickINFO: Tick Eradication and Surveillance Database
6 RESPANG: Surveillance network of nervous diseases of ruminants in Guadeloupe

4. Synergistic interactions with animal health projects conducted in the Caribbean

Collaboration between the coordinators of projects, the activities of which are often conducted in a limited number of countries, is highly encouraged in order to avoid duplication of initiatives in similar geographical areas, for the synergy it may provide both for the project (e.g. impact extended to other countries; continuity after termination of funding) and for the regional animal health network (e.g. benefits from the project to the whole region thanks to co-funding of the participation of other country members in activities organised within the framework of the project; exchange of information).

In the Caribbean, projects on animal health and veterinary public health are encouraged to nest within an existing regional network, which in parallel can assess the needs of the countries. Historically, several projects conducted in the Caribbean have led to the creation of CaribVET working groups. The project on the control of CSF, under the European Union-funded Caribbean Agriculture & Fisheries Programme, led to the creation of the Swine Diseases Working Group. The Caribbean *Amblyomma* Programme led to the creation of the Ticks and Tick-borne Diseases Working Group [9, 10]. In 2008, the VEP Project, a four-year epidemiology capacity-building programme conducted with ten Caribbean islands and funded by USDA-APHIS-IS, was nested and placed under the general coordination of CaribVET. This enabled joint activities to be conducted as well as providing regular circulation of information on the project to CaribVET members and on CaribVET to project members. The VEP Project also benefited from the structures of CaribVET already in place for general coordination and for internal and external communication using health information management systems and tools developed by the Network (CaribVET website, diffusion lists and newsletter). Finally, the CaribVET Steering Committee ensured that the needs of the countries were covered by the project. The Closure Meeting of the VEP Project was jointly organised with the CaribVET Steering Committee and specific recommendations of the VEP Project were defined together with the CaribVET Epidemiology Working Group for their integration in the work plan of CaribVET [1, 9, 10].

Recently, close collaboration has been observed with the FAO TCP H1N1 Surveillance Project: joint organisation of the closure workshop of the project with a CaribVET Laboratory Working Group meeting for easier transfer of recommendations on laboratories, which are now integrated into the work plan of the Working Group [5, 7]. More generally, surveys and projects within the region will benefit from being performed at a regional level (this enables the collection of samples and data, with a greater impact in terms of epidemiology); furthermore, the regional network will also benefit from these studies.

5. Application of quality assurance principles for the management and coordination of regional animal health networks

Technical management/coordination structures ensure implementation and monitoring of activities as well as feedback to partners, and play a key role in the management of health information, which lies at the heart of regional animal health network operation [3]. Considerable human resources, time and energy are generally required to ensure proper interaction and coordination of activities, including the organisation of internal communication. When several persons are involved in network management, proper work organisation is essential to ensure cost-effective coordination. The principles of quality assurance, which are already well-known in the sphere of laboratory management, have interesting applications in the field of surveillance networks.

The CaribVET Coordination Unit, initially made up of CIRAD, CARICOM and USDA-APHIS-IS, was extended to include all Chairs of Working Groups. This extension was intended to transfer responsibilities, as this was identified as one of the key factors for sustainability, leading to a marked improvement in efficiency and increased motivation of members, as well as facilitating the continuity of work despite a rapid turnover of personnel, especially in the context of a budget decrease [9, 10]. The development of a quality system for regional network management applied to CaribVET is not related to any certification or accreditation, but is simply intended to improve performance and traceability and facilitate the organisation and follow-up of activities, documents and competencies. After one year of implementation, this framework has proved useful for identifying responsibilities, organising teamwork and managing documents and is an effective tool for continuously improving network operation. This has helped to strengthen regional network formalisation as well as improve the commitment of members, who are actively involved in the

coordination of activities at regional level. Finally, it is expected to greatly facilitate the development of performance indicators.

6. Advocacy at the highest levels: network relevancy, impact and communication

Regions covered by regional animal health networks may be naturally coherent from both a geographical and a climatic point of view (e.g. Indian Ocean) yet dissimilar in terms of health status [3]. The definition of common priorities for all countries in the region and their periodic review is important as it will further determine the efficiency, relevancy and cohesion of the supranational systems. However, the methodological identification of regional priorities is difficult and, although several diseases prioritisation tools have been developed, there is no clear guideline as to how to obtain results at supranational level. When CaribVET was established, five diseases were defined as priorities, mainly based on expert opinion on the risk of their spread, the global threat they presented, and the frequency of their occurrence in the region and their impact on human health. After six years of operation, the CaribVET Steering Committee recommended reviewing the regional priorities by developing a disease prioritisation tool (currently being prepared by the CaribVET Epidemiology Working Group) and methodology to analyse trends and identify current regional priorities.

In addition, assessing the benefits and impacts of regional animal health networks in individual countries and in the region is a major challenge. However, it is essential to convince funding agencies to support these networks. The development of an economic cost-benefit framework tailored to regional animal health networks would help to convince politicians and other decision-makers. Indeed, advocacy of national supervisory authorities is important if one wishes to have specific national budgets allocated to regional networks — a further step towards sustainability, by ensuring that the core of the network can function independently of short-term projects.

While CaribVET is a purely technical-based network, part of its success has been due to its recognition of the fundamental political persuasions of the geographical region it serves. To this end, its decision to collaborate strongly with the socioeconomic political integration movement of the Caribbean Community (CARICOM), the CARICOM Secretariat and all twenty member countries of CARICOM has had beneficial consequences for the extension and reach of the Network. It has also enabled some of the activities of CaribVET to be aligned with those of the regional programmes and projects in CARICOM. This recognition and involvement of CARICOM goes a long way towards CaribVET being deemed relevant to the development of the Caribbean and by extension towards ensuring its sustainability. Notwithstanding the involvement of CARICOM as a socioeconomic and political entity, the Network's success is also predicated on the buy-in of each member of the Network. Consequently, the advocacy initiatives of CaribVET, supported by the CARICOM Secretariat, have proved a crucial strategy for success.

In addition to its internal and external communication, aimed at developing and exchanging useful information through participative multilingual communication tools (website, forums and online database), CaribVET is developing a specific communication strategy for decision-makers in individual countries in order to increase awareness and advocacy at the highest levels.

7. Promotion of interaction between research, surveillance and capacity building

Research is often perceived as far remote from reality, operational issues and farmers' concerns, whereas the practical problems faced in the field, whether in surveillance (e.g. under-detection of a disease because of inappropriate diagnostic tests) or control (e.g. inefficient disease control by vaccination) and prevention (e.g. no vaccine available for a disease likely to spread), highlight the research needs to tackle these specific issues (e.g. evaluation and development of new diagnostic tests; re-evaluation of a vaccine's efficacy with field strains along with a strain diversity study; vaccine development taking into consideration the field conditions during vaccination programmes, etc.). Collaboration between researchers, animal health stakeholders and coordinators of surveillance/control programmes is needed to build relevant research questions, produce new useful knowledge, and facilitate the application of scientifically-based recommendations in the field and efficient transfer of research outputs to the beneficiaries.

The organisation of capacity-building programmes within such a framework, including professionals from the countries of the region, would help to increase local capacities and, in the long term, expand research potential in developing countries and in the region.

Regional animal health networks, often made up of animal health stakeholders, technical and/or research institutes and other organisations, represent ideal environments for these interactions to take place. The link between research, surveillance and capacity building is an essential component of CaribVET, especially regarding ticks and tick-borne diseases (heartwater) and swine diseases (Teschen disease and classical swine fever) [2, 10, 11], and is being extended to other priority diseases (avian influenza and Newcastle disease). Indeed, several research institutes, recognised regionally or internationally for their expertise, are conducting their research in close collaboration with CaribVET: CIRAD (Guadeloupe) — an OIE Reference Laboratory for heartwater and the OIE Collaborating Centre for Diagnosis and Control of Animal Diseases in Tropical Regions, develops research on tick and tick-borne diseases; the epidemiology of vector-borne diseases; modelling; and avian influenza, Newcastle disease and West Nile virus. CENSA¹ (Cuba), an OIE Collaborating Centre for Epidemiology and Diagnostics of Emerging, Re-emerging and Transboundary Diseases of Animals in the Caribbean and Central America, is conducting leading research on swine diseases, avian influenza, anaplasmosis epidemiology and diagnostics. The University of the West Indies (Trinidad) is conducting epidemiological studies, risk analysis and research on diseases of interest for the region. These research bodies also organise training workshops on epidemiology and diagnosis of priority diseases, provide expertise within the working groups of CaribVET and conduct evaluation missions of laboratories, according to the needs identified by the Network. Finally, as laboratories, they also provide services as regional and/or reference laboratories as they have the appropriate facilities (molecular biology platforms, high-level biosecurity laboratories) for diagnosis and research. The excellent level of participation and involvement of all CaribVET members in each of the regional activities (surveys, training, meetings, etc.) by providing samples, data and information is to be highlighted as it greatly increases the quality of research and studies and hence relevancy for the countries of the region.

CaribVET recognises the benefit of research activities developed in tight interaction within regional networks in the field of animal health and veterinary public health. CaribVET therefore strongly encourages the inclusion of universities and research institutes in regional networks, to enable the development of technical and scientific activities that are closely linked to animal health priorities of the region. In the long term, such an approach is also expected to better prepare all animal health stakeholders for possible disease outbreaks and build capacities for prevention and contingency planning.

8. Conclusion

Situated at an intermediate level between national surveillance networks and international systems, regional animal health networks play a significant role in the strengthening of national surveillance systems, especially for developing regions, by building capacities, transferring knowledge and conducting useful research.

Even if regional animal health networks are sometimes set up thanks to short-term funding resources, they should be developed with a long-term vision. Despite many difficulties and after a long-term process, CaribVET has experienced successful development, with a real buy-in by the CVOs of the region and a true willingness to be transparent and share in achieving the goal of “One Caribbean One Animal Health”. The network is currently working on improving its cost-effectiveness: development of joint activities with regional/international organisations and with animal health projects conducted in the region; identifying and addressing regional priorities; promotion of virtual tools; and sharing of responsibilities. The continuous improvement of CaribVET is based on the implementation of quality assurance principles, and this is expected to lead to the development of performance indicators for internal evaluation, which could prove useful in providing funding agencies with a rationale for supporting such activities.

A number of factors have been identified by CaribVET as key for sustainability. Indeed, a tentative definition of a sustainable regional animal health network could be “a structured network, endorsed by members, with funding of annual steering committee meetings by the members and with access to funding resources thanks to regional network partners for implementation of relevant activities dealing with priority diseases in the region; the network should be managed so that the work is not duplicated and the results are action-oriented”.

1 CENSA: Centro Nacional de Sanidad Agropecuaria

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