

PVS Evaluation Report: Aquatic

BRAZIL

Human, Physical
and Financial
Resources



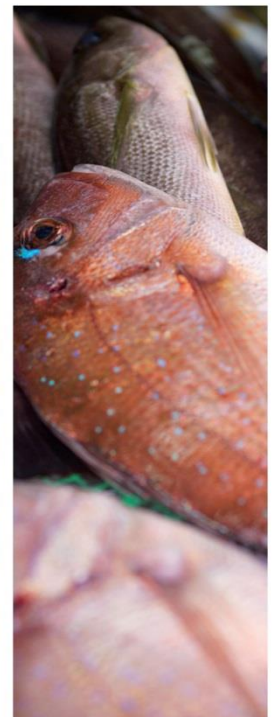
Technical Authority
and Capability



Interaction with
Interested Parties



Access to Markets



October
2015

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OIE PVS EVALUATION

REPORT OF THE

AQUATIC ANIMAL HEALTH SERVICES

OF

Brazil

18-30 October 2015

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Disclaimer

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List of acronyms, abbreviations and/or special terms

AA	Aquatic Animal
AAH	Aquatic Animal Health
AAHP	Aquatic Animal Health Professional
AAHS	Aquatic Animal Health Services
ABCC	Shrimp Farmers Association - <i>Associação Brasileira de Criadores de Camarao</i>
ABLA	Aquarium shops association - <i>Associação Brasileira de Lojas de Aquarofilia</i>
CA	Competent Authority
CAO	Community Assistance Offices
CE	Continuing education
CFMV	Federal Veterinary Council – <i>Conselho Federal de Medicina Veterinária</i>
CIDASC	Integrated company for the development of agriculture in Santa Catarina – <i>Companhia integrada de desenvolvimento Agrícola de Santa Catarina</i>
CGAL	General Coordination for Laboratory Support
CGI	General Coordination for Inspection
CGSAP	General Coordination of Aquatic Animal Health - <i>Coordenação Geral de Sanidade Aquícola</i>
CNA	National Confederation of Agriculture and Livestock - <i>Confederação da Agricultura e Pecuária do Brasil</i>
CPACZ	Coordination of Animal Health Planning, Evaluation and Control – <i>Coordenação de Planejamento, Avaliação e Controle Zoossanitário</i>
CPV	Coordination Unit for the Inspection of Veterinary Products - <i>Coordenação de Fiscalização de Produtos Veterinários</i>
CRMV	State (Regional) Veterinary Council(s) - <i>Conselho Regionais de Medicina Veterinária</i>
CVL	Central Veterinary Laboratory
CVO	Chief Veterinary Officer
DEP	Epidemiology Division - <i>Divisão de Epidemiologia</i>
DFIP	Inspection Department for Livestock Inputs - <i>Departamento de Fiscalização de Insumos Pecuários</i>
DIPOA	Division of Inspection of Products of Animal Origin - <i>Departamento de Inspeção de Produtos de Origem Animal</i>
DIPES	Division of Inspection of Fishery products - <i>Departamento de Inspeção de Produtos da pesca</i>
DMC	Department for Monitoring and Control
DSA	Department of Animal Health - <i>Departamento de saúde animal</i>
DVS	Director of Veterinary Services – Chief Veterinary Officer (CVO)
EAC	Community Attendance Office - <i>Escritório de Atendimento a Comunidade</i>

EMBRAPA	Brazilian Agricultural Research Corporation - <i>Empresa Brasileira de Pesquisa Agropecuária</i>
ENAGRO	National School for Agriculture Management - <i>Escola Nacional de Gestão Agropecuária</i>
EPAGRI	Agricultural Research and Rural Extension Agency of Santa Catarina – <i>Empresa de Pesquisa Agropecuária e Extensão Rural de Santa Catarina</i>
FAO	Food and Agriculture Organization of the United Nations
FVS	Federal Veterinary Service
GTA	Animal Movement Permit - <i>Guia de Transito Animal</i>
IBAMA	Brazilian institute for the environment - <i>Instituto Brasileiro do Meio Ambiente</i>
IBGE	Brazilian Geography and Statistics Institute - <i>Instituto Brasileiro de Geografia e Estatística</i>
IRA	Import risk assessment
LANAGRO	National Animal and Plant Laboratory - <i>Laboratório Nacional Agropecuário</i>
LIMS	Laboratory Information System
LVU	Local Veterinary Unit
MAPA	Ministry of Agriculture, Livestock and Supply - <i>Ministério da Agricultura, Pecuária e Abastecimento</i>
MERCOSUL	South Common Market - <i>Mercado Comum do Sul</i>
MMA	Ministry of Environment and National Resources - <i>Ministério do Meio Ambiente e Recursos Naturais</i>
MoH	Ministry of Health
MPA	Ministry of Fisheries and Aquaculture - <i>Ministério da Pesca e Aquicultura</i>
OIE	World Organisation for Animal Health
OIE-PVS	OIE Performance of Veterinary Services Evaluation Tool
PNCRC	National Plan for the Control of Residues and Contaminants - <i>Plano Nacional de Controle de Resíduos e Contaminantes</i>
PGA	Agriculture Management Platform - <i>Plataforma de Gestão Agropecuária</i>
RGP	<i>Registro Geral da Pesca</i>
SDA	Secretariat of Livestock Defence - <i>Secretaria de Defesa Agropecuária</i>
SISREC	<i>Information system on requirements and certification for animal health - Sistema de Informação de Requisitos e Certificados da Área Animal</i>
SEAP	Special Secretariat of Aquaculture and Fisheries - <i>Secretaria Especial da Aquicultura e Pesca</i>
SEBRAE	Support Agency to Small and Micro Enterprises - <i>Serviço de Apoio as Micro Pequenas Empresas</i>
SEDESA	Service of Protection of Animal and Plant Health - <i>Serviço de Defesa da Sanidade Agropecuária</i>

SEFAG	Service of Animal and Plant Inspection - <i>Serviço de Fiscalização Agropecuária</i>
SENAR	National Rural Learning service - <i>Serviço Nacional de Aprendizagem Rural</i>
SIF	Federal Inspection Service - <i>Serviço Inspeção Federal</i>
SIGVIG	Information System for Export and Import - <i>Sistema de Informação Gerenciais de Importação e Exportação do Vigigro</i>
SVS	State Veterinary Service
TTP	Public Fisheries Terminal
VEE	Veterinary Educational Establishment(s)
VIGIAGRO	General Coordination of International Surveillance - <i>Sistema de Vigilância Agropecuária Internacional</i>
VMP	Veterinary Medicinal Product(s)
VPH	Veterinary Public Health
VEE	Veterinary Education Establishment
VS	Veterinary Service(s)
VSF	Veterinary Statutory Body as per OIE Code definition

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Likewise, we wish to thank all Federal and State Offices and Agencies in all States of Brazil visited for their cooperation, assistance and excellent presentations to facilitate the evaluation within the limited time available. The open discussions and assistance given to the team by private sector representatives greatly contributed to the evaluation efforts, understanding of the inter-sectorial relationships and their specific needs.

This was of particular value in understanding the complexities of public governance in Brazil. The Team was impressed by the professionalism and dedication by all persons met and interviewed to their respective fields of responsibility and duties.

Thank you to Dr Guilherme H. Marques OIE Permanent Delegate and Dr Eduardo A. P. Cunha, Head of the General Coordination of Aquatic Animal Health (CGSAP) at MPA, for the in-depth preparation of the mission's activities and to Drs Marina Delphino and Pedro Oliveira, Brazilian counterparts for the mission, who accompanied the team on all visits and acted as valuable resource persons, organizing, translating and making possible an amazing mission.

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PART I: EXECUTIVE SUMMARY

I.1 Introduction

At the request of the Government of Brazil, the Director General of the OIE appointed an independent OIE PVS team consisting of Drs Ana Afonso (Team Leader), Larry Hammell (Technical Expert) and Nikša Barišić (Technical Expert) to undertake an evaluation of the Aquatic Animal Health Services (AAHS) of Brazil. The evaluation was carried out on October 18-30, 2015.

The Ministry of Fisheries and Aquaculture (MPA) was responsible for the Aquatic Animal Health Services of Brazil until its extinction in October 2015. At the time of the visit the Coordination of Aquatic Animal Health, the mission organizer and counterpart, was reintegrated in the Ministry of Agriculture and Animal Production (MAPA), but the new structures were still to be defined. The current report describes the previous systems in place, which were still operational at the time of visit.

The evaluation took into account relevant standards in the OIE Aquatic Animal Health Code (the Aquatic Code) and those in the OIE Terrestrial Animal Health Code (the Terrestrial Code), using the OIE PVS Aquatic Tool (2013) to guide the procedures. Relevant Aquatic and Terrestrial Code references for each critical competency appear in Appendix 1.

This report identifies the strengths and weaknesses of the AAHS of Brazil as compared to the OIE standards and contains recommendations for actions to improve performance.

The evaluation began with meetings with the representative of the Brazilian OIE Delegate, Dr Eduardo A. P. Cunha, Head of the General Coordination of Aquatic Animal Health (CGSAP) at MPA of Brazil, the Brazilian OIE focal point for aquatic animal health, Dr Henrique C. P. Figueiredo and senior staff of MPA and other stakeholders with relevant roles for the PVS Evaluation. The first meeting was an opportunity to discuss the expectations of the Brazilian delegate for this mission.

Brazilian authorities wish to obtain, through the PVS Evaluation, an independent and objective review of the work conducted by the AAHS of Brazil, to identify gaps and weaknesses and provide additional information to establish priorities and strategic objectives informing public policies in the area of AAH. Although the aquatic animal production sector is still relatively small in Brazil, especially compared to other livestock sectors, and most of the production is targeted at the internal market, the sector has a large potential for growth and it is of great importance to the economy of some Brazilian regions.

The mission had a total duration of 12 working days. Thus, it was not possible for a team of three experts to evaluate all aspects covered by the PVS aquatic tool applied to production in such a large and diverse country. When possible, the information available from the PVS follow up mission of February 2014 was used as evidence for common competencies.

The OIE PVS Team visited sites and institutions, both public and private sector, in the Federal district capital Brasilia, and in six different states and discussed relevant matters with government officials, public Veterinarians, aquaculture farmers and responsible staff in aquatic product establishments, including other interested parties.

The mission concluded at MPA with an exit meeting, where the preliminary findings of the PVS Team were discussed.

I.2 Key findings of the evaluation

I.2.A Human, physical and financial resources

The mission has been conducted at the time when the AAHS were in transition to merge all of the components of the AAHS to MAPA. Since the transition had not been completed yet, and there was no new official organizational structure, these findings are related to the organizational structure before the transition, which was still operational at the time of visit.

The CA for the AAHS is MPA and all the relevant AAHS and regulation of sanitary conditions of the primary production of fishery products (including freezer vessels, fish farms and fish landing sites) in Brazil are performed or coordinated by CGSAP, located at the Secretariat of Monitoring and Control of Fisheries and Aquaculture (SEMOC) within MPA. However, the Veterinary Public Health Services are performed by MAPA, specifically by the Fish and Products Inspection Division (DIPES/CGI/DIPOA/MAPA), responsible for the supervision of establishments of fish products.

There is a general entrance examination procedure that applies to all public servants in Brazil, which along with clear and systematic job descriptions, ensures all the Veterinary and technical positions are occupied by personnel with appropriate formal qualifications. CGSAP does not have a sufficient number of Veterinarians and Aquatic Animal Health Professionals (AAHP's) and most of those are not permanent civil servant employees.

There is no specific separate structure of AAHS at the state, regional and local level, so CGSAP is implementing AAH policies through the State Veterinary Services (SVS's), however, most of the official state Veterinarians are not solely dedicated to AAH and information on exact number of official Veterinarians involved in AAHS was not available, neither was information on the number of Veterinarians providing services to the fish farmers.

AAHS do not have AAHP's in the current official structure; however, the current legislative framework provides a legal basis to involve "legally enabled professionals" in certain tasks related to AAH.

According to the CMFV, the number of VEE's has increased from 202 in 2014 to 227 in 2015; however, CMFV impression is that the quality of training courses has not improved as needed.

The aquatic production sector of Brazil is currently immature; however the government is supporting plans for significant industry expansion. Current low critical mass in the industry means the employment market has not yet shown significant need for technical expertise in AAH, consequently, students do not often take courses in AAH when offered as an option and many of the private VEE's do not offer courses on AAH, even as an option. To comply with the OIE recommendation on competencies of "day one graduates", certain initial training courses will have to include AAH as a standard part of the curriculum to ensure sufficient number of graduating Veterinarians qualified to implement official AAH programs.

Regarding continuing education, MPA offers three specific training programmes for the AAHS for the states that signed the agreement with MPA on implementation of AAH programs: in bivalve molluscs production; fish production and shrimp production. These courses consist of a theoretical and practical part and include lessons on production systems, diseases, sampling, diagnostics, prophylactic and therapeutic treatments, monitoring programs, movement controls and biosecurity.

MAPA has established ENAGRO (Escola Nacional de Gestao Agropecuaria) as a school for continuous professional development of all MAPA staff to develop specific training programmes tailored to meet the objections of MAPA. ENAGRO is operational and providing distance learning courses and class courses for the professional development; however, it is not yet offering any courses with specific topics for AAH.

Capability of the AAHS and VS to carry out their duties with autonomy and free from commercial, financial, hierarchical and political influences, differs depending on the level of authority as well as the challenges which might influence the technical decision making process. To reduce the risk of influencing the AAHS at the central level, CGSAP is publishing all the Import Risk Analyses on the MPA website, which makes the whole procedure more transparent and more resistant to any kind of non-scientific considerations.

AAHS is going through the third major reorganization over the last 12 years, but there was no evidence that these reorganizations have had a negative impact on sustainability of policies so far; however, a review of the transition process will be requested as an addendum to this document to ensure essential AAHS transition successfully to MAPA authority.

Having delineation of responsibilities in AAHS and VPH between the MPA, MAPA, SVS and municipality Veterinarians, internal coordination is complex and challenging. MPA and MAPA signed a technical cooperation agreement in 2010 (Acordo de Cooperacao Tecnica No 06/2010) defining responsibilities and a formal way of communication. Cooperation with SVS is more demanding because MAPA does not have effective mechanisms in place to force SVS to actually sign the agreement with MPA. So, coordination with some states that signed the agreement goes well, whereas, some of the SVS are not signed to the agreement at all. This is one of the key issues for the level of implementation of AAH programs as the MPA does not have the staff at the state and local level to perform, but they depend on the SVS structure for this purpose. MPA and MAPA do not coordinate activities with municipality Veterinarians.

In general, the physical resources are adequate for the scope of activities currently performed, although during the field visits, the Team noted that some official Veterinarians interviewed indicated inadequacy of cars (no air condition at extreme high temperatures), no laptops or tablets for fieldwork and Internet connection varies a lot.

MPA has ensured a sufficient 5-year budget for the period 2011-2015, specifically directed to AAH and covers laboratory funding, AQUAEPI and state agreements. The specific AAH budget does not include salaries, infrastructure maintenance etc. States are co-financing these programs varying between 5-20%. The budget has not been executed as planned because not all states have signed agreements and not all that have signed the agreement have been paid due to insufficient state administrative capacity.

Institutional framework for emergency funding is defined and consists of private and public funds; however, it is not absolutely clear if it would be applied to aquaculture in all of the states.

AAHS has ensured significant capital investment in development of diagnostic capacities: AQUACEN (Central Official Laboratory) and LAQUA, (located in Itajai) laboratory for marine biotoxins through which it showed the capability to access funding for additional investments (material and non-material) that have led to sustained improvement in the VS operational infrastructure.

MPA is managing operations through the detailed Working Plans with each of the SVS that signed the agreement with. Working plans are very comprehensive and

provide a solid basis for effective management of operations. MAPA and CNA have a joint project on establishing a computerized systems integration platform called the Agriculture Management Platform (AMP/PGA), to standardize working procedures and to provide access to information entered and collected in different states. MPA has developed definition of rules and follow up of the electronic control of animal transit in the AMP, however most of the SVS do not use this integrated system for the AAH programs yet.

1.2.B Technical authority and capability

National infrastructure of collaborating laboratories is heavily focused in small number of state-of-the-art, federally funded laboratories with two laboratories currently operational and another two being established and organised in a network (RENAQUA). The supporting laboratory system appears to consist of very few aquatic laboratories outside of this central system. Local or state services that would provide initial investigation capabilities are sparse at best, and completely absent in many cases. Lack of access to a wider spectrum of diagnostic techniques, particularly outside of the specialised diagnostic capabilities provided by the central laboratory, will likely hinder investigations into the pathogenesis of emerging diseases.

Although there was no evidence of any formal QA systems outside of the central laboratory, there are efforts towards an audit system with good quality training of technical support. Proficiency testing is being done for a small number of pathogens and further work is planned to examine diagnostic sensitivity and specificity using the epidemiology expertise at local universities. State agencies are responsible for establishing training courses but very few states have documented activity in this area.

The Import Risk Analysis (IRA) process is based on OIE recommendations. Recognising the lack of resources, but also the need to include more advanced methods and wider expertise in IRA, the MPA has subcontracted a consortium of universities with epidemiological expertise (AQUAEPI) to support IRA activities. IRA's are conducted for imports of live aquatic animals and aquatic products, but there is no evidence of risk analysis being used for other AAH policies.

Aquatic animal imports, arriving at two international airports, have largely been limited to ornamental animals, which undergo a rigorous inspection process by VIGIAGRO. The capability of the VS to prevent the entry and spread of aquatic pathogens for aquaculture species was difficult to assess due to the low frequency of historical occurrence and absence of an IRA for ornamental fish. Land border security is considered a much lower priority due to the lack of any documented aquatic animal movements through these locations.

For air shipments, the importation process is well documented with an electronic system for submitting consignments. During inspections, clinical disease and mortalities are observed in a selection of units, but no pathogen testing occurs. Since there are no facilities at the point of entry suitable for destruction of shipments, the consignment is released to a Customs-approved location or returned to origin. Approved quarantine facilities for imported aquatic ornamental animals are established and organized. Inspectors have training and continuing education in recognizing generic disease states, but not specifically in aquatic animals. Due to budget constraints, external audits of procedures have not been performed recently, but internal audits are done annually.

The aquatic notifiable disease list is composed of 27 diseases, including diseases listed by the OIE and diseases considered important for national aquaculture. However, there appears to be very low expectation that government officials would respond to notifications of unusual health or mortality occurrences in aquaculture and the local VS would not likely have the capacity and training for a thorough investigation. A higher functioning surveillance and monitoring system would require support from a variety of AAHS including, but not limited to; national standard diagnostic procedures, laboratory network proficiency testing and test validation activities, compulsory reporting, compulsory movement control, improved centralized data collection and storage, improved aquaculture facility registration and compulsory on-farm biosecurity for aquaculture, systematic and inexpensive sampling logistics, updated and/or new national procedure manuals, development of an aquatic animal

disease field guide, better targeted and resources epidemiology research for the benefit of aquaculture etc.

The General Transport Authorization (GTA) system of registering farms, particularly harvest animals requiring transport to another location, is well-established for terrestrial animal movements and has been applied more recently to aquatic animals. SVS are in various stages of their agreement with MPA to apply GTA's and biosecurity measures to aquatic animals. Delayed availability of federal funds for state engagement created a gap in implementation of many aspects, including expanding the training in AAH and nationally notifiable diseases.

The AAH program recently established epidemiological surveillance support mechanisms, including the obligation to report unusually high mortality events, but the implementation of the legislation was postponed until 2017. Although each aquaculture establishment is obligated to have a responsible veterinarian, states vary in their application of this requirement.

Except for food safety biotoxin testing, there is no evidence of active surveillance programs for notifiable pathogens in any aquaculture species. However, cooperation between Federal diagnostic laboratories and university epidemiologists provide the necessary expertise to design and initiate active surveillance programs once state VS and farmers are convinced or are mandated to cooperate through compulsory reporting regulations required for registration of facilities.

Different states have variable capacity for rapid and comprehensive responses to aquatic animal disease outbreaks or food safety events. Investigations of aquatic animal disease outbreaks would rely on general terrestrial Veterinary knowledge without specific training or diagnostic support for aquatic animal diseases. Although contingency plans for specific disease outbreaks have been initiated, detection of a major disease outbreak would likely not occur, or be substantially delayed, due to the reluctance of producers to seek assistance from government regulators. Aquaculture producers have little awareness of disease issues and do not recognise the need or commercial benefit to comply with animal health standards. Time delays would compromise the tracing of animal movements or instituting food safety product recalls, reducing the overall effectiveness of an emergency response.

Regulatory authority and funding for outbreak investigations is unclear due to the underdeveloped state VS involvement in AAH. Regulatory disease containment plans are not clearly defined and the state and federal agency responsibilities are not delineated.

As the responsible authority, MPA (now MAPA) has a strong awareness of OIE standards for aquatic animal pathogens and has developed the federal legal framework to address its international reporting obligations. Although farming sectors have adapted their health management systems to incorporate many standard biosecurity practices, many of these strategies are based in company policies and are not part of regulatory programs involving state or federal authorities.

With so much of its aquatic animal production directed toward the domestic market, many economically important diseases do not influence international trade. The motivation for disease control is to improve productivity, financial efficiency and sustainability at the farm level and not at the regulatory level. The federal components of the framework are more developed, but there is a practical challenge in obtaining appreciation by producers and local VS regarding the need for regulated aquatic animal disease reporting and control, including animal traceability programs. Due to the general lack of scientific information unique to Brazilian species and diseases, the ability to prevent and control endemic diseases will require applied health research to determine optimal detection and mitigation strategies.

All establishments for production, processing and distribution of food of animal origin are registered at one of the three levels of government administration (federal, state and municipal) through a detailed legal process. The central coordination services have limited knowledge of procedures followed by state or local authorities. Company self-imposed controls and implementation of corrective actions are verified, possibly with further microbiological analysis, and documentation of production processes are reviewed by government Veterinary or auxiliary inspectors. Corrective actions are challenging due to the insufficient number of staff for routine inspections and fisheries landings usually occur in the absence of sanitary inspection. Although legislation on AAH, planned for implementation in 2017, will oblige a certificate of origin for all fishery products, links with sanitary conditions in aquaculture or traceability of catch fishery products is currently not standardised. A national programme, including monitoring of marine biotoxins, detection of harmful environmental algae, and *E. coli* quantification, exists for bivalve mollusc controls and is most evident in the state with the majority of mollusc production.

The Department for the Inspection of Livestock Inputs (DFIP) has responsibility for inspection and supervision of all biologics and Veterinary medicines, including those used in aquatic animals. There are few Veterinary medicines, and only one vaccine registered for use in aquatic animals. Veterinary prescription is mandatory, with extra-label use not permitted. Limited availability and lack of on-farm controls may promote untraceable or unauthorized uses.

MAPA is responsible for the execution of Brazil's "National Plan for the Control of Residues and Contaminants" which includes fishery products. A predefined number of non-risk based, random samples, including wild fish, farmed fish, and shrimp, are taken from federally inspected establishments, but not from establishments approved at state or municipal levels. Six official (public) and seven accredited (private) laboratories form the network for residue analyses. Poor traceability of fishery products would jeopardise product recalls if one was necessary.

Animal Movement Permit (GTA) certification has been applied to varying degrees to aquatic animals since 2011. The traceability of live aquatic animals is limited to harvests and farmer self-declarations with no inspection of animal populations or inclusion of health or production records. Pathogen exposure routes are not covered by this system and so would not support outbreak investigation or control. No official visits are done by state VS to hatcheries, nor is there any traceability or official record of animal movements from hatchery to grow out sites.

Export certification was evident for aquatic ornamentals. Mollusc traceability is done through GTA, but this is usually missing if consumption occurs locally. Harvest area closures due to excessive biotoxin levels will block a GTA permit from being issued. Labelling of animal origin products is regulated by federal legislation. However, products derived from aquatic animals were not clearly traceable except through the GTA permissions at harvest. Traceability of products is generally insufficient and if a recall is necessary it could be done based on fiscal records, but it would be very challenging.

Although the CA's (MPA and MAPA) are aware of the OIE standards and the need to develop and enforce standards, there is no national legislation on Welfare of Farmed Fish. Aspects related to welfare during transport and slaughter have been included in guidelines for HACCP and control systems of establishments authorized for processing aquaculture products. MAPA is working on animal welfare legislation, but so far no activities were developed in relation to aquatic animals.

1.2.C Interaction with interested parties

The Brazilian authorities have a general policy of openness and transparency. Meetings are held with representatives of the aquaculture producers association, ornamental industry and fisheries to discuss current issues and plans for the future both in a formal and informal manner. Interaction between relevant authorities, including other ministries and CA's national agencies and decentralised institutions that share authority or have mutual interest in relevant areas are frequent. The service agreement between MPA and MAPA includes the access to all records, registers and reports. At state level there is frequent communication between the state and federal inspection services, the state Veterinary authorities, and the state producers and industry associations, but no contact with municipal authorities. The communication plan both in the areas of food safety and animal health as well as across the various administrative levels is well-developed and the services actively and regularly circulate information to interested parties and make information publicly available through their web sites.

The aquaculture and fisheries production sector is organised in national associations, which have a membership representative of their sector, although small/family farmers are under-represented. The aquaculture and fisheries sectors are represented at the Confederation of Agriculture and Livestock of Brazil. The MPA during its operation period 2009 to 2015 conducted a policy of active communication with stakeholder organizations. Many visits from the ministry officials and the minister himself gave the sector a prominent role. The National Council for Fisheries and Aquaculture was created in 2003 to propose public policies and promote coordination between the various public administration levels and the organized civil society.

Brazil is one of the largest animal origin product exporters in the world; therefore it is of no surprise the interest and importance that the country gives to representation on international organizations. The aquaculture and fisheries sector is proportionally very small, however an AAH focal point was nominated and MPA actively participates in, coordinates and provides follow up on relevant meetings of OIE regional and global events.

The legislative framework gives authority to the CA to delegate certain tasks to private Veterinarians, such as issuing of animal movement documents. However, the absence of adequately trained Veterinarians in AAH makes it less effective, training schemes and delegation procedures vary across states.

The Brazilian Veterinary Statutory Body system has regional (state) statutory bodies and a federal body. All public and private sector Veterinarians in Brazil must be registered in order to have a professional activity. Veterinary para-professionals (technicians) are not registered.

The exclusive competencies of the Veterinarians are defined by law and include all inspection activities of products of animal origin including aquatic products and Veterinary medicine practice. The legislation that creates the Brazilian national health program for aquatic animals gives such competencies also to other animal health specialists, which according to the council, is in contradiction with the law. There is the need to better define the competencies necessary. The Brazilian Veterinary Statutory Body does not have authority regarding the quality of Veterinary training offered by the VEE's in Brazil or activities to promote continuous education of its registered members.

AAHP roles and training opportunities have not been identified across the public or private sectors. There is no legislation establishing an organization with responsibilities for the regulation of the AAHP's other than Veterinarians and no proposal to address this matter.

MPA and MAPA signed a technical agreement in 2010 for the National Program for Aquatic Animal Health to be implemented in 2017. The MPA has established a plan for collaboration with the states for implementation of the measures proposed in AAH. At the time of the PVS Evaluation mission 18 agreements were in progress and several proposals for new agreements were being prepared. But only 2 /18 agreements have been signed and received a budget from the federal government.

So far and contrary to the situation regarding terrestrial animal health the participation of the aquatic animal producers in joint programs is limited.

1.2.D Access to markets

Legislation for the Veterinary domain is extensive and covers all relevant areas: animal health, animal movement control, Veterinary public health, authorisation and control of VMP's, residues control, animal feed and border control of animals and food of animal origin.

The MPA has developed an important work on the preparation of legislation and regulations for AAH. Fifteen different normative acts were developed and adopted between 2010 and 2015 covering different animal and public health aspects related with AA. Criteria for disease listing and risk analysis are available as well as a regulatory framework for laboratory and epidemiological support. Production, distribution and sale of AA products are regulated and procedures for registration, inspection and monitoring of establishments and products are available.

The implementation (due in 2017) of all measures planned in the National Aquatic Animal Health Program will be extremely challenging due to the lack of sufficient number of trained Veterinarians or other AAHP's. The differences between state level legislation can lead to additional complications and delays.

The fish and fishery product authorization and inspection services are at three different levels: federal, state and municipal. Controls on the sanitary conditions of fishing vessels or landing sites with exception of two TTP already in operation are not implemented.

OIE focal points have been nominated for all responsibilities including AAH. The authorities are aware of international requirements. Resources are generally allocated to international cooperation activities.

The regulatory framework concerning food safety is well developed and updated to international standards. There are official certification programs in place for exports of animals and food of animal origin.

Exports of live fish concern mostly exports of ornamental fish. All Veterinary requirements and model certificates for different importing countries are available. The health certificate by the responsible veterinarian (private veterinarian) certifies that the fish is clinically healthy and without ectoparasites and or other AA diseases at the time of the clinical examination. On the basis of this certificate and a list of the species and number of fish to be exported the official veterinarian issues the authorization for the issuing of the international zoosanitary certificate. Health certificates do not have indication of place of origin or if fish is of wild catch or farmed if the importing country does not require this information.

The fisheries and aquaculture sector have been oriented to the national market and the exports are for the moment very low. If production increases and exchange rates are more favourable for exports, Brazil has the necessary certification and procedures for export in place, but would have to implement AAH programs that are in accordance with international standards and/or importing country requirements.

International obligations and standards are well known by the VS. Prompt notification of all relevant information related to sanitary status is performed by the VS using established procedures. However disease events may occur at the local level without the state or federal VS being aware. These information gaps create a challenge for international reporting obligations.

The disease status for most of aquatic animal populations is unknown. Since there are few opportunities for effective passive surveillance due to the lack of reporting even for significant mortality events in aquatic animal populations, and no active surveillance programs, zoning and compartmentalisation for diseases is not a realistic option until supporting AAHS are in place and functional. Most situations in aquatic animal production in Brazil are not amenable to instituting or maintaining disease free compartments. However, if there was the appropriate oversight, diagnostic surveillance, and other essential supporting AAHS to establish pathogen freedom or provide a high level of effective health management, it is conceivable that some companies would invest in a closed containment system amenable to a privately operated compartment.

Table 1: Summary results of the OIE PVS Evaluation - Aquatic (NA – Not available)

	Result
I. HUMAN, PHYSICAL AND FINANCIAL RESOURCES	
I-1.A. Staffing: Veterinary or aquatic animal health professionals	4
I-1.B. Staffing: Aquatic animal health professional and other technical personnel	4
I-2.A. Professional competencies of Veterinary or aquatic animal health professionals	2
I-2.B. Competencies of aquatic animal health professional and other technical personnel	2
I-3. Continuing education	2
I-4. Technical independence	3
I-5. Stability of structures and sustainability of policies	3
I-6.A. Internal coordination (chain of command)	3
I-6.B. External coordination	3
I-7. Physical resources	3
I-8. Operational funding	4
I-9. Emergency funding	3
I-10. Capital investment	4
I-11. Management of resources and operations	3
II. TECHNICAL AUTHORITY AND CAPABILITY	
II-1.A. Access to laboratory diagnosis	4
II-1.B. Suitability of national laboratory infrastructures	5
II-2. Laboratory quality assurance	1
II-3. Risk analysis	4
II-4. Quarantine and border security	4
II-5.A. Passive epidemiological surveillance	2
II-5.B. Active epidemiological surveillance	1
II-6. Emergency response	3
II-7. Disease prevention, control and eradication	1
II-8.A. Regulation, authorisation and inspection of establishments	3
II-8.B. Inspection of collection, slaughter, processing and distribution of products of aquatic animal origin	3
II-9. Veterinary medicines and biologicals	2
II-10. Residue testing	3
II-11. Aquatic animal feed safety	3
II-12.A. Aquatic animal movement control	2
II-12.B. Traceability of products of aquatic animal origin	2
II-13. Welfare of farmed fish	1
III. INTERACTION WITH INTERESTED PARTIES	
III-1. Communication	5
III-2. Consultation with interested parties	4
III-3. Official representation	4
III-4. Accreditation/authorisation/delegation	3
III-5.A. VSB authority	3
III-5.B. VSB capacity	4
III-5.C. Other professional authorities	1
III-5. Participation of producers and other interested parties in joint programmes	3
IV. ACCESS TO MARKETS	
IV-1. Preparation of legislation and regulations	4
IV-2. Implementation of legislation and regulations and compliance thereof	3
IV-3. International harmonisation	4
IV-4. International certification	3
IV-5. Equivalence and other types of sanitary agreements	4
IV-6. Transparency	4
IV-7. Zoning	1
IV-8. Compartmentalisation	2

I.3 Key recommendations

I.3.A Human, physical and financial resources

Being the fifth largest country in the world, with a federal system comprising 26 states and one federal district, which differ in fisheries and aquaculture production development, Brazil has a complex structure of AAHS and VS and therefore requires specific approach in evaluation in order to define the needs specific for each state. Consequently, it is recommended that CA undertake PVS self-evaluation of each state VS, which was not feasible for this mission due to the time constraints. This could be done with national team of PVS experts, strengthened by AAHP's trained in PVS Evaluations.

Although the process of merging of MPA and MAPA should result in more simple coordination, administrative capacities of the central authority should take the opportunity now and strengthen AAHS to deal with the future activities that will be expanded to support rapidly increasing aquaculture production. A review of the transition process is required as an addendum to this document to ensure essential AAHS transition successfully to MAPA authority.

Considering that some of the states visited did not execute or sign the agreement due to insufficient capacities it is useful to clearly define the obligation of the state to ensure sufficient human resources to execute the agreement with the federal CA and to regularly audit the capacity of the SVS to implement programs.

High number of VEE's has increased further since the OIE PVS Evaluation Follow-Up mission, however, courses on AAH are only optional and very few students take these courses due to limited demands of the industry for such experts. OIE recommendation on competencies of "day one graduates" requires the VEE to provide minimum competencies needed by graduating Veterinarians to be adequately prepared to participate in National Veterinary Services (both public and private sector) at the entry level. In order to ensure execution of AAH programs in long term and to comply with the OIE recommendations on "day one graduates", the CA should identify the number and roles of professionals (Veterinarians and AAHP's) needed in the long term to implement national AAH programs and the minimum number of VEE's to provide competencies needed for graduating Veterinarians to be adequately prepared at the entry level to participate in AAH programs. Identification of AAHP roles and skills to meet capacity should include, but not be limited to; laboratory technicians, field staff, researchers (including epidemiology and diagnostic development), emergency response staff, policy officers, teachers, etc.

All the technical staff participating in AAH programs, which include MAPA, MPA, SVS's, municipality official staff, and accredited/authorized private Veterinarians, need to have regular access to continuing education programs, simulation exercises, standard operating procedure manuals, work instructions and field guides tailored to meet specific needs of AAHS etc. The CGSAP has already started preparing such guidelines and manuals for the implementation of the National Aquatic Animal Health Program.

Since it is expected that the process of integrating MPA within MAPA will make coordination between AAH and VPH structure less complex and more efficient, effort should be focused on coordination with SVS's, which includes assessment of current difficulties in conclusion and execution of agreements and development of feasible solutions in collaboration with SVS's. The CA needs to develop collaboration and coordination mechanisms with municipality official Veterinarians to integrate them into the AAHS. It is recommended to develop a long-term strategic plan for the CGSAP

and that the CGSAP be successfully re-integrated into MAPA and expanded for the implementation and administration of all AAHS, including the work schedule for the National Aquatic Animal Health Program. MAPA should consider an efficient and effective structure for the expanded CGSAP, such as exists in countries with highly developed and effective AAHS governance. For example; CGSAP could be structured as a committee with full representation from the various regions. The CGSAP should have power to delegate all long-term allocated resources, manage work programs, implement and operate certain AAHS and generally provide national leadership and direction for all AAH issues such as policy, technical, training and research direction setting. Expanded regional mandatory membership should be provided as in-kind services. Work programs should be tasked through either contract or through working groups assembled from the regions' existing skill-base and under the direction of CGSAP administrative and secretariat services.

1.3.B Technical authority and capability

The technical capability investments made by the federal government of Brazil demonstrate a strong commitment to international aquatic disease reporting obligations. However, due to the complexity of interactions between the federal and state authorities and their differences in approaches to international aquatic disease regulations and technical capacities, the disease detection and investigation capabilities rely heavily on a small number of expert diagnostic laboratories that are not supported by state or local experts. Therefore, it is recommended that the state and private diagnostic capacity be strengthened and that expanded expertise should include the ability to investigate emerging pathogens both in the field and in tank-based research facilities. At all levels, further verification of diagnostic procedures through a comprehensive program that includes, development of national standard diagnostic procedures, proficiency testing and test validation.

An example of how core competencies can be efficiently achieved is for MAPA to initiate the planned registration of all aquaculture facilities. Registration should be multi-tiered to accommodate the approval of mandatory requirements for registration such as; an environmental plan; on-farm biosecurity and health management procedures; compulsory reporting of mortality; and a compulsory movement control system. Such critical data collection will be essential for regulation and analysis to assist; long-term industry planning, disease reporting, sample collection, targeted research, emergency management, research strategy, targeted diagnostic development, controlled drug use, and most importantly, improved productivity through better national health management underpinned by regulatory control and a properly informed AAHS. Nationwide registration may appear to be an extremely daunting task; however, the information collected will provide the essential foundation evidence for long-term strategic industry and AAHS planning.

Much of Brazil's aquaculture production is not tracked in such a manner as to identify aquatic animal populations prior to harvest. As the market for aquaculture products in Brazil is primarily domestic and the finfish species and environmental conditions are frequently unique to the country, there is less perceived need by the producers to involve regulatory authorities in managing health or reporting disease outbreaks. These conditions are not conducive to a cooperative structure for surveillance, passive or active, and are likely to impede progress once export of product is planned. The Veterinary service is less knowledgeable about aquatic animal diseases, making the response to disease more of a producer issue. Therefore, it is recommended that the informatics capabilities for tracking live aquatic animals be modernized and more funding, training, and research should be directed to support development of state and local expertise in the welfare, disease detection, and

control of Brazilian aquatic species and environments. Registration as described above should be considered as an effective means to improve information collection.

Priority areas for establishing active surveillance should be based on sector expansion plans and the risk of pathogen introduction and transmission. Through mandatory reporting or collaboration with academic, private, and local VS, baseline information about live animal movements should be developed to enhance the effectiveness of surveillance programmes. Disease outbreak investigation and emergency response plans, including the regulatory framework outlining roles and responsibilities of the different levels of VS and the financial policies related to regulatory actions, operational procedures (movement restriction, decontamination, disposal, etc.), and industry compensation agreements should be established and communicated to the state and local VS and the producers. Development of an aquatic emergency response plan (e.g. emergency response procedure manual) should include a simulation exercise for training purposes.

Brazil has a large commercial fishery in addition to its domestic aquaculture production. Food safety assurance systems should be standardised across all levels, from source to consumer. Animal movement traceability, before and after slaughter, should be improved and inspections should be standardised to provide the framework for product recalls. A national policy on traceability should be developed to facilitate consistency across regions and across products derived from aquatic animals, addressing compliance with international standards, and improving consumer protection and confidence.

Controls on the sale and usage of Veterinary medical products through on-farm and Veterinary practice records should be instituted as part of a larger program (such as mandatory on-farm biosecurity plans required for registration) to define conditions for safe use and disposal to protect environmental, animal, and public health.

A national laboratory accreditation program affiliated with international laboratory standards is universally accepted as world's best practice.

1.3.C Interaction with interested parties

The implementation of planned activities for AAH in support of aquaculture and fisheries development can only be possible by effective interaction between interested parties. The now extinct MPA has put in place a system for consultation between relevant stakeholders that should be maintained and improved. As regards cooperation between the various governmental institutions, the reintegration and expansion of CGSAP to MAPA will facilitate the links between federal and state Veterinary services, but is recommended to improve communication between the state level administration and municipal authorities through representation e.g. membership, on CGSAP organisational structures such as committees or working groups.

AAH programs already in place or in plan depend on federal funding that needs to be ensured (re-stated) under the new MAPA structure so that long-term objectives and sustainable development of the aquatic sector is achieved.

Early detection and reporting of emerging diseases will require better information and training of Veterinarians and producers regarding AAH. Develop and disseminate procedure and training manuals; for example, emergency response manuals, endemic/exotic aquatic animal disease field guide, setting up on-farm biosecurity and reporting, sampling in the field, national standard diagnostic procedures, etc. Continued education courses are also recommended to support the development of the sector by providing access to professionals trained in AAH.

Training on AAH is part of Day-1 competencies for Veterinarians. The high number of private and public VEE's and the increasing number of graduating Veterinarians without a thorough quality and Day-1 competency assessment may have a detrimental impact on the Veterinary system in Brazil. Political will and close cooperation between all institutions involved (such as the Ministry of Education and the CFMV) is needed to find acceptable solutions within the legal framework of Brazil.

Since AAHP's generally make up the majority of professionals working in all aspects of AAH, AAHP roles in disciplines such as research, diagnostics, field ecologists, epidemiology and surveillance, emergency response, laboratory staff, farm health and husbandry managers, policy officers, etc., should be identified and courses offering generic training for AAHP's be identified and recognised for providing training for all public and private sector AAHP's.

1.3.D Access to markets

The legislative framework in the area of AAH and fishery products safety is comprehensive and supported by technical competence and stakeholder consultation. Implementing procedures for external quality review and impact assessment studies in the preparation of legislation would be beneficial.

Implementation of AAH programs is at a very initial stage. It is important to identify the needs and start providing training to officials at state level to implement the National Aquatic Health Program, including the familiarization with procedure manuals, implement regular auditing and verification of official activities, and improve coordination between inspections done on farm or landing and in processing establishments. Products for the local market should comply with the same hygiene standards as products for export market. To improve compliance, authorities and consumer education at national and state levels, including the sanitary measures covered by legislation, should be improved.

The Brazilian AA production is targeted at the national market; however, if export markets grow, it will be necessary to recruit staff to the animal health and food safety departments, including laboratories, to support inspection, testing and certification of export consignments. It is important to maintain and prioritise engagement with international organisations (notably the OIE and the Codex Alimentarius Commission) to influence international standards and negotiations and ensure export capacity and continue to invest authority in the VS to negotiate and maintain equivalence and sanitary agreements with trading partners.

PART II: CONDUCT OF THE EVALUATION

At the request of the Government of Brazil, the Director General of the OIE appointed an independent OIE PVS team consisting of Dr Ana Afonso (Team Leader) and Drs Larry Hammell and Nikša Barišić (Technical experts) to undertake an evaluation of the aquatic animal health services of Brazil. The evaluation was carried out from 18 to 30 October 2015.

II.1 OIE PVS Tool - Aquatic: method, objectives and scope of the evaluation

To assist countries to establish their current level of performance, form a shared vision, establish priorities and carry out strategic initiatives, the OIE has developed an evaluation tool called the OIE Tool for the Evaluation of Performance of Aquatic Animal Health Services (OIE PVS Tool - Aquatic) which comprises four fundamental components:

- Human, physical and financial resources
- Technical authority and capability
- Interaction with interested parties
- Access to markets.

These four fundamental components encompass 47 critical competencies, for each of which five qualitative levels of advancement are described. For each critical competency, a list of suggested indicators was used by the OIE Evaluation Team to help determine the level of advancement.

A glossary of terms is provided in Appendix 2.

The report follows the structure of the OIE PVS Tool - Aquatic. The objective and scope of the PVS Evaluation of the AAHS includes all aspects relevant to the OIE Aquatic and Terrestrial Animal Health Codes. In addition, the scope and objectives were clarified before the mission (see Appendix 7) as appropriate to the mandate and context of the AAHS in this country.

This report identifies the strengths and weaknesses of the aquatic animal health services of Brazil as compared to the OIE standards. The report also makes some general recommendations for actions to improve performance

II.2 Country information (geography, administration, agriculture and aquatic production)

The Federative Republic of Brazil is South America's largest country by both population and geographical size. Brazil enjoys an extensive coastline that measures almost 8,500 kilometres. Its other borders are made up of Venezuela, Guyana, Suriname, French Guiana, Colombia, Bolivia, Peru, Argentina, Paraguay and Uruguay. Ecuador and Chile are the only South American countries with which Brazil does not share its borders. There are various groups of islands that also belong to Brazil, such as Saint Peter, Trindade and Fernando de Noronha, amongst others. Its entire area measures exactly 8,514,876.599 square kilometres.



Figure 1: Brazil and neighbouring States

Administrative organization

Brazil has 26 **states**, over 5,500 municipalities and a Federal District in which the capital city, Brasília, is located. The states and municipalities of Brazil are divided mainly for geographical and administrative purposes.

The **regions** are geographical, these are:

- Northern Region: Amazonia, Para, Roraima, Acre, Amapá, Rondônia and Tocantins.
- Northeast Region: Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia.
- Central-West Region: Mato Grosso do Sul, Mato Grosso, Goiás and Distrito Federal.

- Southeast Region: Minas Gerais, Espírito Santo, Rio de Janeiro and São Paulo.
- Southern Region: Paraná, Santa Catarina and Rio Grande do Sul.

There are currently more than 5,500 individual municipalities in Brazil, each classified as an administrative division of the state that they occupy. Each municipality represents an average of about 35,000 residents and each state has an average of 214 municipalities. The administrations, or local governments, are autonomous, granting them a measure of independence from the political regions around them.

Climate and Agro-ecological zones

Because of its great territorial extension, Brazil presents varied precipitation and temperature regimes. All over the country, a great variety of climates with distinct regional characteristics can be found. In the North of the country, a rainy equatorial climate is found, with practically no dry season. In the Northeast, the rainy season, with low rainfall indexes, is restricted to a few months, characterising a semi-arid climate. The Southeast and West-Central regions are influenced not only by tropical systems but also by mid-latitudes, with a dry season well defined in the winter and a rainy summer season with convective rain. The South of Brazil, due to its latitude, is affected mostly by mid-latitude systems, in which the frontal systems cause most of the rain during the year.

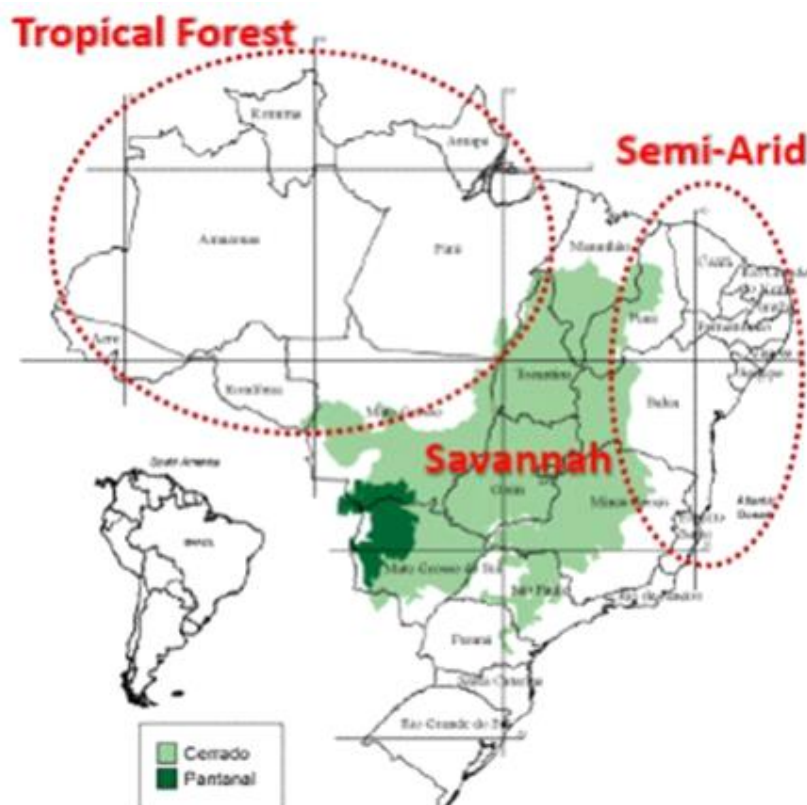


Figure 2: Agro-ecological zones of Brazil

Brazil has a coastline of almost 11,000 km and 12% of the planet's surface freshwater. An estimated 5.5 million hectares of aquatic production capacity. Having the largest fresh water reserves in the world and an extensive coast line, the potential of Brazil in this sector is very high.

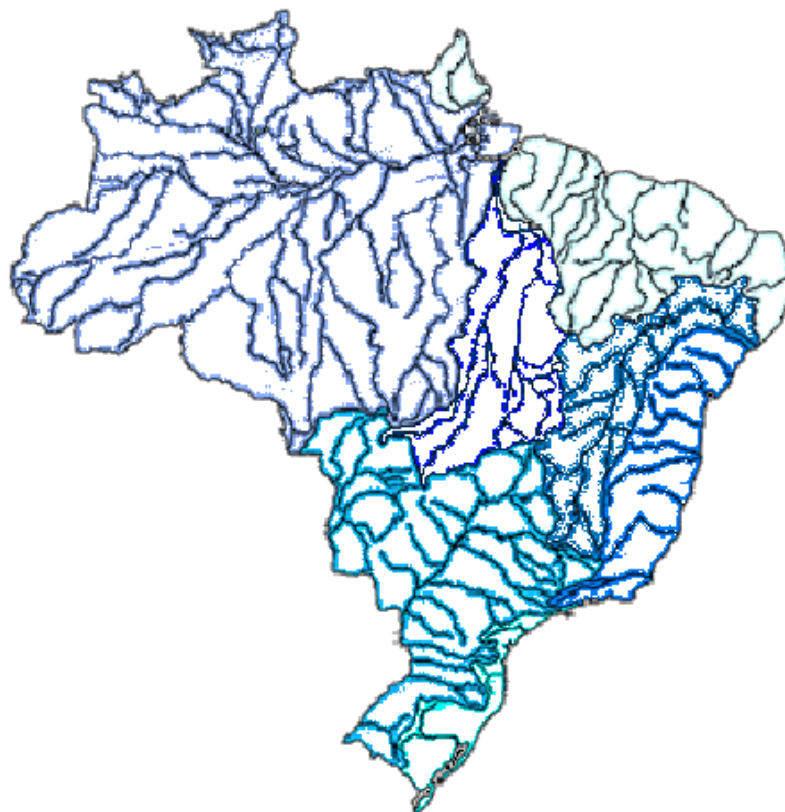


Figure 3: Brazil inland water resources

Table 2: Topography

Topography	Km2
Total area	8,515,767.049 km ²
Coastline	8,400 km
Marine water area	3.7 million km ²
Shelf area	0.8 million km ²
Land area	8,358,140 km ²
Inland water area	157,630 km ²

Human Demography

Brazil is South America and Latin America's largest country. According to the latest census, undertaken in 2010, the population of Brazil was 190,732,694. Due to rapid population increase and mobility, the Statistical Institute of Brazil (Instituto Brasileiro de Geografia e Estatística, IBGE), provides regular updates (<http://www.ibge.gov.br/home/default.php>). The latest update from July 2013, reported a population estimate of 200,674,130 people. Brazil has a very young population and it is estimated that 62% of Brazilians are aged 29 or under.

Table 3: Human population and number of aquaculture farms

Human population		Aquaculture households/farms	
Total number	190,732,694	no. fisheries	1,096,930
Average density / km ²	22.43/km ²	no. aquaculture	22,286
% of urban	84.36 %		
% of rural	15.64 %		

Aquatic animal production

The total production of fisheries and aquaculture production of Brazil in 2011 was 1,431,974.4 tons (http://www.mpa.gov.br/files/docs/Boletim_MPA_2011_pub.pdf), 56.1% of these are from wild catch fisheries (38.7% from marine fisheries and 17.4% from continental fisheries (inland waters) and 43.9% from aquaculture (38% continental aquaculture - freshwater and 6% from marine aquaculture). The activity raises an overall PIB of R\$ 5 billion it employs 800,000 professionals (fishermen and aquaculture producers) and an overall direct and indirect 3.5 million jobs.

In coastal areas and in the Amazon basin fish consumption is much higher than in inland regions. Estimates suggest that annual per caput fish consumption in the Amazon basin may exceed 30 kg/yr. In other areas of the country, and in larger cities, fish consumption has increased substantially in recent years as a result of campaigns to promote fish consumption. Annual consumption per capita was estimated at about 8.9 kg in 2010, with a rapid increase from 6.0 kg in 2005 (<http://www.fao.org/fishery/facp/BRA/en>). In 2013, MPA estimated that the Brazilian annual per capita fish consumption was 17.3 kg.¹

Brazil is the largest importer of fish in the Latin American region. Imports of fish and fishery products have shown a series of ups and downs during the last decade due to the economic crisis at the start of the decade. Since 2003, imports have increased regularly, reaching nearly USD 1.3 billion in 2011, but slightly declining by 1% in 2012 at USD 1.2 billion. Exports have increased from USD 123 million in 1998 to USD 427 million in 2004, but declined to USD 212 million in 2012, due to the increase in demand from its domestic market and the strengthening of the national currency against the US dollar, <http://www.fao.org/fishery/facp/BRA/en>. The current exchange favours exports from Brazil. In this scenario, the shrimp and mollusc industries have better opportunities to reach international markets.

Statistics on aquaculture and fisheries, production and number of farms / vessels / establishments are difficult to obtain or to verify. Until 2013 aquaculture and fisheries production statistics were developed based on indicators, such as feed consumption and sales and performed by different entities (e.g. Association of Shrimp Farmers or Fisheries Professional Associations), in 2014 information was collected through “small census” at municipality level under the responsibility of the Brazilian Statistical Institute (Insituto Brasileiro Geral de Estatística, IBGE).

Fisheries sector

The Brazilian fishing fleet is composed by vessels with distinctive characteristics, depending on the area of operation, the fishing method used, and main catch species. There are approximately 30,000 fishing vessels in the Brazilian official marine fisheries fleet. The fleet operating in inland waters is predominantly formed by small vessels, and statistics are deficient. Continental fisheries (inland waters) are very important to the North region, approximately 25,000 continental fisheries vessels, distributed in the states of Pará (20,826), Amazonas (2,616), Roraima (631), Tocantins (561), Rondônia (395) and Acre (312) are estimated. The inland fleet of the North region is predominantly motorized with a significant number of sail vessels in Pará and rowing vessels in Amapá made of wood and focused on artisanal fisheries of Amazonic fishes.

According to available data (update in 07/07/2015) there are 1,100,713 fishermen and fisherwomen in the Brazilian General Registry of Fisheries Activities (Registro Geral da Atividade Pesqueira, RGP). These data are constantly updated.

¹ Available at “Cartha-Balanço 2013 do MPA” <http://bibspi.planejamento.gov.br/handle/iditem/453>

Table 4: Fishing vessels

REGION	STATE	Nº OF VESSELS	TYPE OF VESSELS	% NATIONAL TOTAL FLEET	CATCH SPECIES
SOUTH (7,257 vessels)	Santa Catarina	5,728	Predominantly small , GT < 20 (except Rio Grande do Sul fleet, predominantly medium, 20> GT < 100); predominantly motorized; predominantly made of wood; predominantly focused on industrial fishery (except Paraná fleet, predominantly focused on artisanal fishery).	35.56%	Sardine; striped bonito, shrimp, demersal fish.
	Paraná	1,344			
	Rio Grande do Sul	186			
SOUTHEAST (6,288 vessels)	Espirito Santo	1,459	Predominantly small , GT < 20; predominantly motorized (in Rio de Janeiro are a significant number of rowing vessels); predominantly made of wood; predominantly focused on industrial fishery.	30.81%	Sardine; manjuba; mullet; corvina; mackerel; hogfish; shrimp; squid.
	Rio de Janeiro	3,161			
	São Paulo	1,668			
NORTHEAST (4,608 vessels)	Ceará	1,806	Predominantly small , GT < 20; predominantly motorized (there are significant sail vessels in Ceará, Rio Grande do Norte and Maranhão fleet); predominantly made of wood; predominantly focused on artisanal fishery	22.58%	Lobsters, snapper, tunas, demersal fish.
	Bahia	797			
	Rio Grande do Norte	465			
	Maranhão	456			
	Paraíba	299			
	Alagoas	282			
	Pernambuco	270			
	Piauí	130			
Sergipe	99				
NORTH (2,253 vessels)	Pará	2,093	Predominantly small , GT < 20; predominantly motorized; predominantly made of wood; predominantly focused on artisanal fishery.	11.04%	Piramutaba, snapper, shrimp.
	Amapá	160			

Landing of extractive fisheries is carried out in various non-registered locations and structures. The MPA has recently invested resources to build “Public Fisheries Terminals – TPP’s”, buildings equipped for the landing, storage, processing and sale of fishery products. The following figure presents the locations and operational status of TPP’s in Brazil.

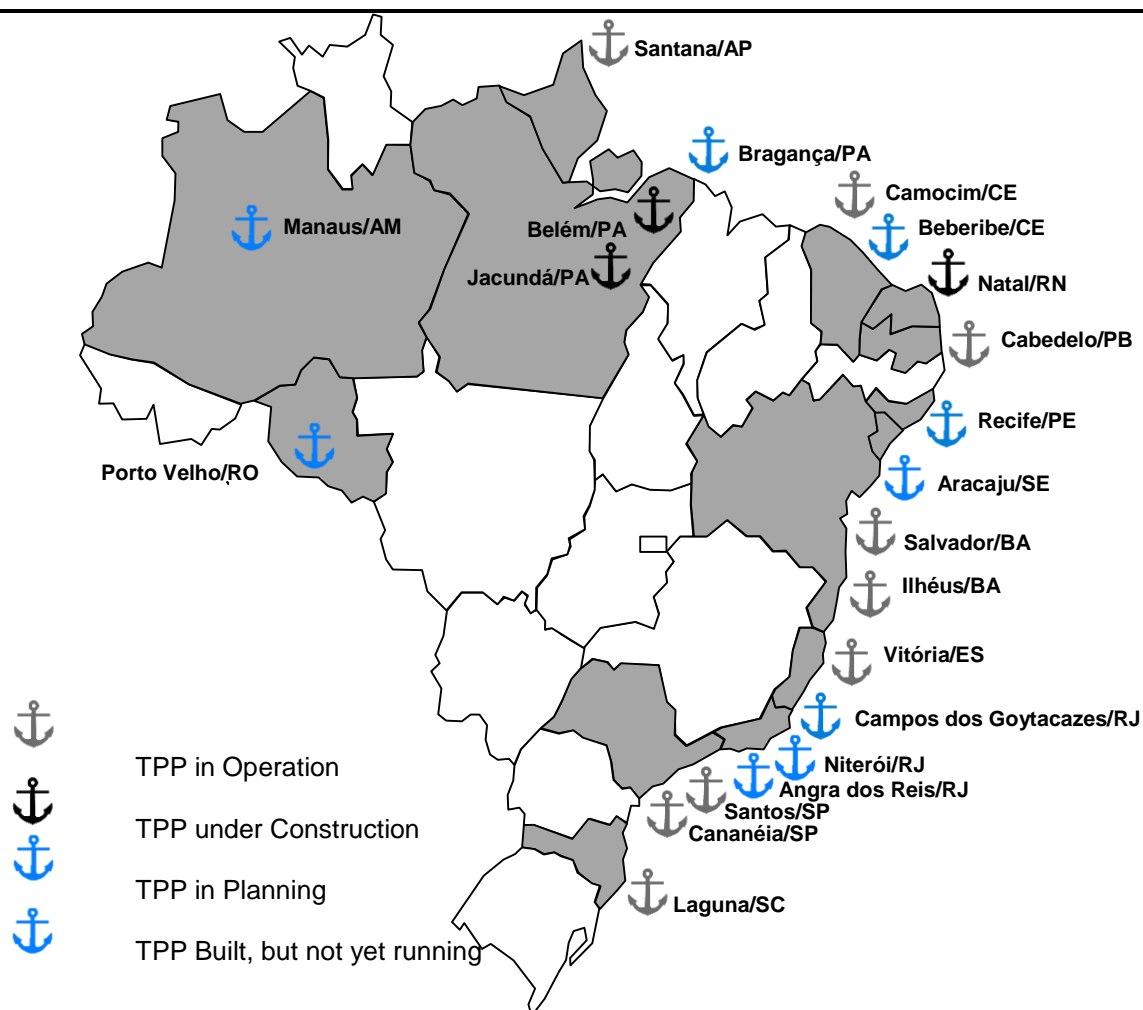


Figure 5: Locations and operational status of TPP's in Brazil.

Aquaculture Sector

The aquaculture sector has developed rapidly over the last 2 decades. According to the MPA statistics the increase of production from 2003 to 2009 was approximately 35%, 278,000 to 415,000t in less than a decade. Freshwater fish production, in particular Tilapia, is the one with the fastest growth.

According to FAO statistics, in 2013, Brazil produced 388,700t of finfish in inland aquaculture and was the 9th largest producer in the world. Brazil produced 64,669t of shrimp (1.6%) and was the 10th largest producer in the world. Nevertheless, Brazil still does not appear among the 10 largest aquaculture producers in the world (FAO, 2015)².

² FAO Global Aquaculture Production database updated to 2013 – Summary information. Available at: www.fao.org/fishery/statistics/software/fishstati/en

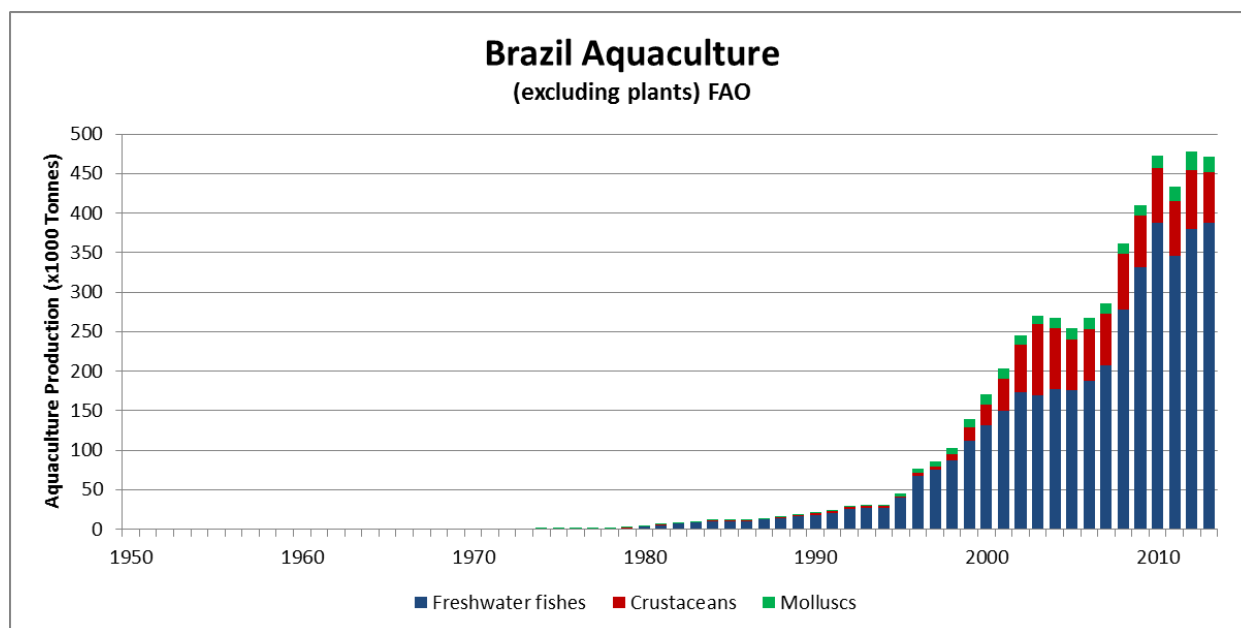


Figure 6: Reported aquaculture production in Brazil from 1950 (FAO Fishery statistics)

Freshwater fishes dominate aquaculture production with more than 387,000 tonnes produced in 2013 (FAO fishery statistics). The Brazilian marine aquaculture production (84,000 tonnes) can be divided in bivalve culture (22%) and shrimp culture (78%). Bivalve production is concentrated in Santa Catarina State (over 90% of production) and is based on three species: mussel (*Perna perna*); 86%, pacific oyster (*Crassostrea gigas* and *C. brasiliana*); 13.93% and 0.07% scallop (*Nodipecten nodosus*).

Table 5 - Brazilian marine aquaculture data.

REGIONS	STATES	NUMBER OF MARINE AQUACULTURE SITES	Nº OF SITES BY MAIN MARINE CULTURED SPECIES			
			Shrimp	Mussel	Oyster	Scallop
NORTH	Acre	0	0	0	0	0
	Amazonas	0	0	0	0	0
	Amapá	0	0	0	0	0
	Pará	16	2	0	14	0
	Rondônia	0	0	0	0	0
	Roraima	0	0	0	0	0
	Tocantins	0	0	0	0	0
NORTHEAST	Alagoas	38	0	0	38	0
	Bahia	56	41	0	15	0
	Ceará	128	127	0	1	0
	Maranhão	8	5	0	3	0
	Paraíba	33	33	0	0	0
	Pernambuco	95	95	0	0	0
	Piauí	16	16	0	0	0
	Rio Grande do Norte	290	288	0	2	0
Sergipe	79	77	0	2	0	
SOUTHEAST	Espírito Santo	22	0	11	10	1
	Minas Gerais	0	0	0	0	0
	Rio de Janeiro	137	1	102	8	26
	São Paulo	59	0	34	21	4
SOUTH	Paraná	94	1	0	93	0
	Rio Grande do Sul	0	0	0	0	0

	Santa Catarina	556	23	416	105	12
MIDWEST	Distrito Federal	0	0	0	0	0
	Goiás	0	0	0	0	0
	Mato Grosso do Sul	0	0	0	0	0
	Mato Grosso	0	0	0	0	0
	TOTAL	1.627	709	563	312	43

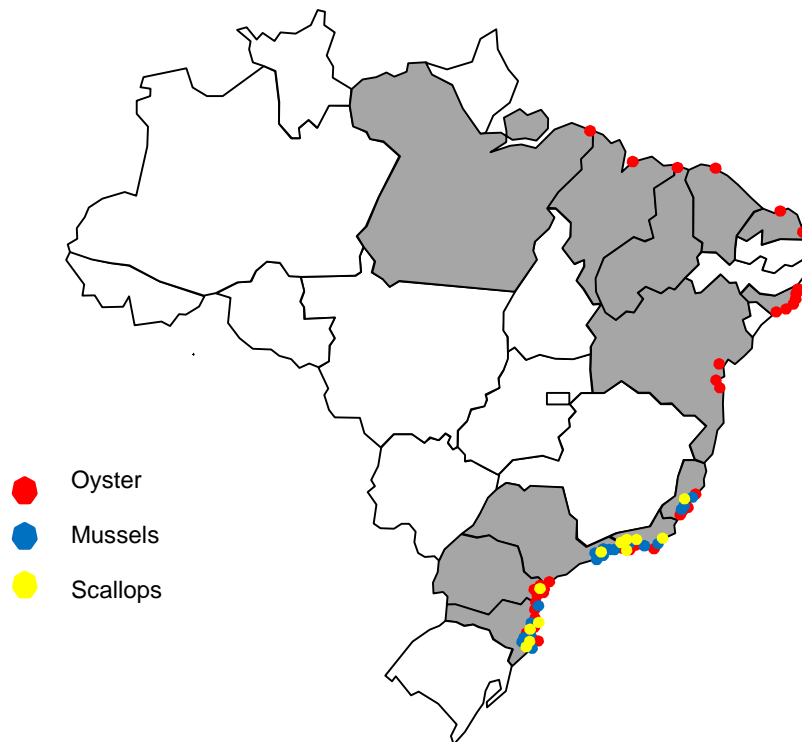


Figure 7: Bivalve aquaculture production areas

Shrimp culture is concentrated in Rio Grande do Norte and Ceará States, based on *Litopenaeus vannamei*.



Figure 8: Shrimp aquaculture production areas

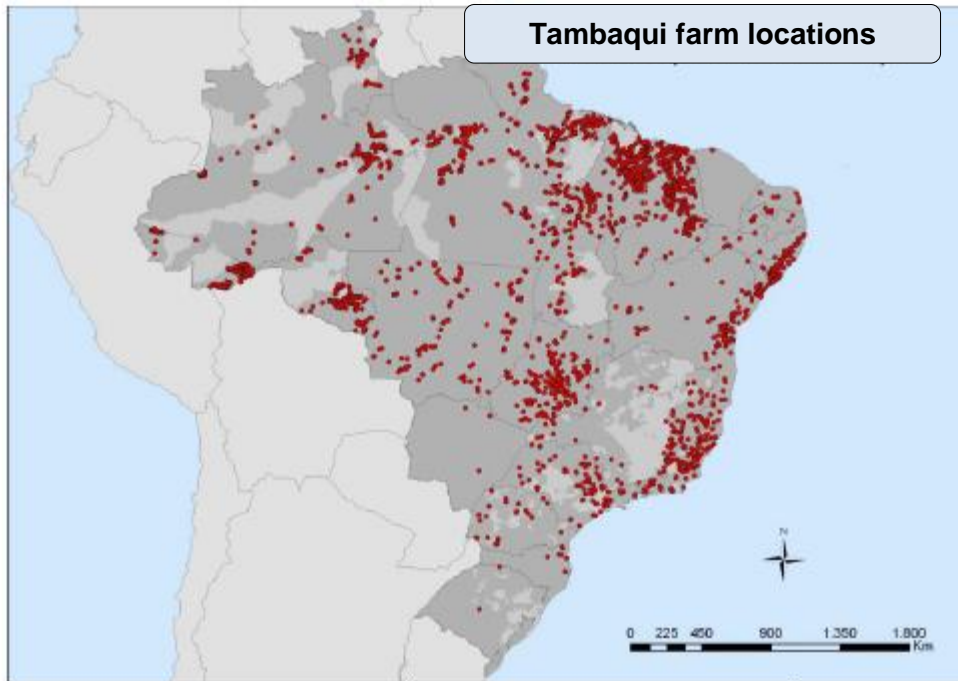
Brazilian inland aquaculture production is focused on five main fish species: Tilapia, *Oreochromis niloticus* (46.62%); Tambaqui, *Colossoma macropomum* (20.40%); Hybrid Tambaqui, *Colossoma macropomum* x *Piaractus mesopotamicus* (9.15%); Carp, *Cyprinus carpio* (6.99%); and Pacú, *Piaractus mesopotamicus* (3.98%). There is no information available regarding production of farmed ornamental fish, it is estimated that these are 90% of the total traded and only 10% are wild caught.

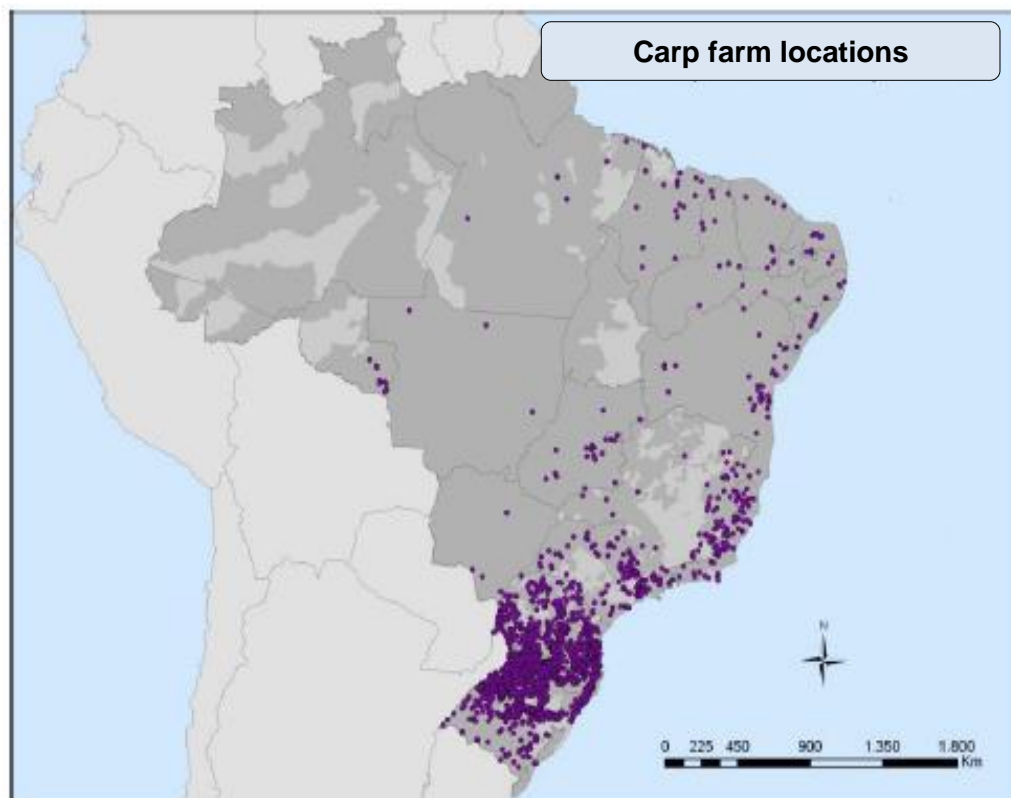
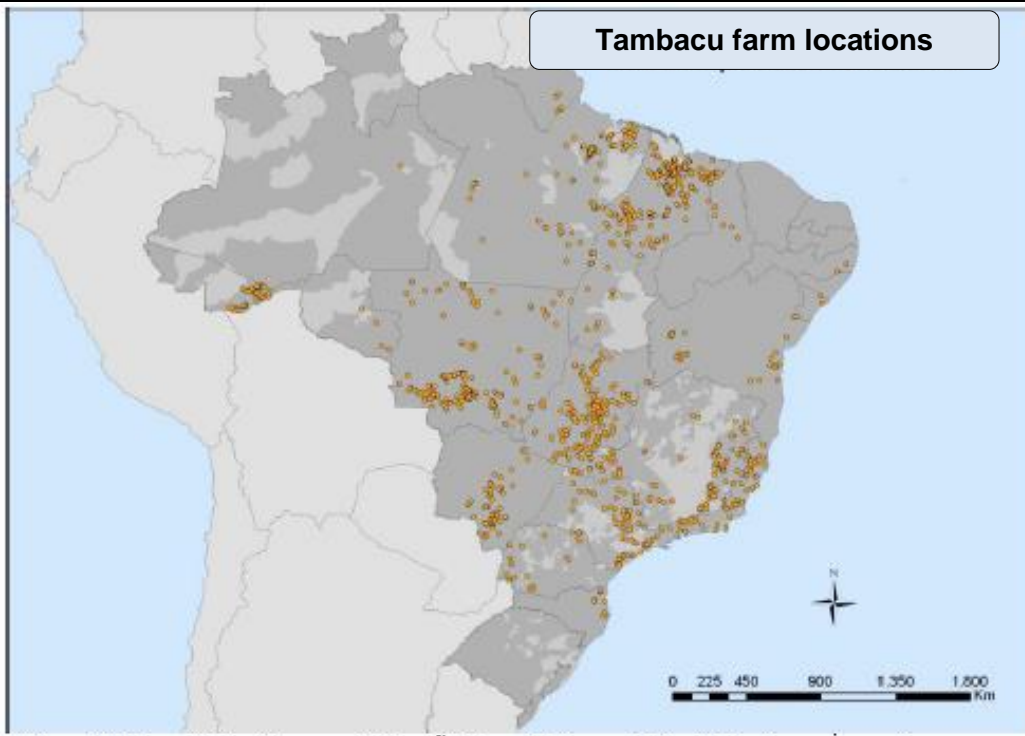


Figure 9: Tilapia, Tambaqui, Tambaqui and Pacu (from left to right)

Table 6: Brazilian continental (inland waters) aquaculture production data

REGIONS	STATES	NUMBER OF CONTINENTAL AQUACULTURE SITES	Nº OF SITES BY MAIN CULTURED SPECIES					
			Tilápia	Tambaqui	Tambacu	Carp	Pacú	OTHERS
NORTH	Acre	434	33	252	71	0	12	66
	Amazonas	380	0	320	1	0	1	58
	Amapá	71	7	42	6	0	0	16
	Pará	1,189	180	698	179	5	32	92
	Rondônia	430	64	295	4	42	3	22
	Roraima	46	4	42	0	0	0	0
	Tocantins	211	1	92	37	0	15	66
NORTHEAST	Alagoas	323	175	104	0	6	0	0
	Bahia	954	678	150	1	42	19	5
	Ceará	861	665	2	1	12	0	1
	Maranhão	1,376	270	938	6	23	83	18
	Paraíba	238	183	18	0	3	1	0
	Pernambuco	348	199	38	0	10	4	0
	Piauí	757	285	418	2	11	2	22
	Rio Grande do Norte	536	208	16	0	8	0	0
Sergipe	270	81	104	0	4	0	3	
SOUTHEAST	Espírito Santo	570	387	54	39	41	31	6
	Minas Gerais	1.007	596	105	106	81	94	25
	Rio de Janeiro	522	215	58	31	32	52	21
	São Paulo	1,812	758	91	71	171	538	127
SOUTH	Paraná	2,624	1.413	23	21	564	507	14
	Rio Grande do Sul	2.413	399	2	0	1.823	189	0
	Santa Catarina	4,463	1.781	8	8	1.916	273	2
MIDWEST	Distrito Federal	60	31	14	6	3	5	1
	Goiás	957	192	192	157	19	204	193
	Mato Grosso do Sul	201	37	3	58	5	90	8
	Mato Grosso	562	13	170	195	3	57	124
TOTAL		23,615	8,855	4,249	1,000	4,824	2,212	890





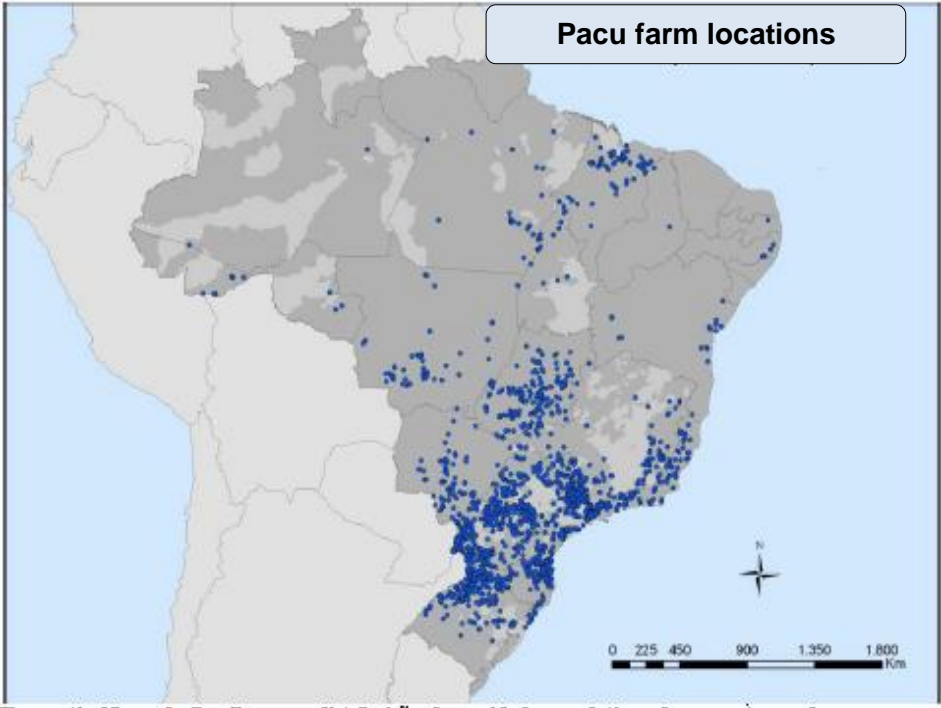


Figure 10: Farm locations (source MAPA - 2015)

Table 7: Aquatic animal production in tonnes (Census 2011)

Production by Species (tons)	FISH			
	Marine Fisheries	Continental Fisheries	Marine Aquaculture	Continental Aquaculture
BRAZIL	482,335.70	243,820.70	0,00	544,490.00
Tilápia (<i>Oreochromis niloticus</i>)	0,00	0,00	0,00	253,824.10
Tambaqui (<i>Colossoma macropomum</i>)	0,00	0,00	0,00	111,084.10
Hybrid Tambacu (Tambaqui x Pacu)	0,00	0,00	0,00	49,818.0
Carp (<i>Cyprinus carpio</i>)	0,00	0,00	0,00	38,079.1
Pacu (<i>Piaractus mesopotamicus</i>)	0,00	0,00	0,00	21,689.3
Curimatã (<i>Prochilodus lineatus</i>)	0,00	28,643.00	0,00	0,00
Piramutaba (<i>Brachyplatystoma vaillantii</i>)	0,00	24,789.30	0,00	0,00
Jaraqui (<i>Semaprochilodus</i> spp)	0,00	16,556.80	0,00	0,00
Dourada (<i>Brachyplatystoma filamentosum</i>)	0,00	14,486.10	0,00	0,00
Hake (<i>Cynoscion</i> spp)	0,00	13,150.30	0,00	0,00
Sardine (<i>Sardinella brasiliensis</i>)	75,122.50	0,00	0,00	0,00
Corvina (<i>Micropogonias furnieri</i>)	43,369.70	0,00	0,00	0,00
Striped Bonito (<i>Katsuwonus pelamis</i>)	30,563.30	0,00	0,00	0,00
Yellow hake (<i>Cynoscion acoupa</i>)	21,074.20	0,00	0,00	0,00
OTHERS	312,206.00	146,195.20	0,00	179,581.80
Production by Species (tons)	CRUSTACEANS			
	Marine Fisheries	Continental Fisheries	Marine Aquaculture	Continental Aquaculture
BRAZIL	57,344.80	5,779.50	65,670.60	0,00
Shrimp (<i>Litopenaeus vannamei</i>)	0,00	0,00	65,670.60	0,00
Shrimp (<i>Macrobrachium</i> spp)	0,00	5,779.50	0,00	0,00
Seabob Shrimp sete-barbas (<i>Xiphopenaeus kroyeri</i>)	15,417.80	0,00	0,00	0,00
Pink Shrimp (<i>Farfantepenaeus</i> spp)	10,331.20	0,00	0,00	0,00
“Uçá” Crab (<i>Ucides cordatus</i>)	8,607.50	0,00	0,00	0,00
Lobster (<i>Panulirus argus</i> , <i>P. laevicauda</i>)	6,929.20	0,00	0,00	0,00
White Shrimp (<i>Litopenaeus schimitti</i>)	4,115.70	0,00	0,00	0,00
OTHERS	11,943.40	0,00	0,00	0,00
Production by Species (tons)	MOLLUSCS			
	Marine Fisheries	Continental Fisheries	Marine Aquaculture	Continental Aquaculture
BRAZIL	13,989.40	0,00	18,541.70	0,00
Mussels (<i>Perna perna</i>)	3,772.50	0,00	15,989.90	0,00
Oyster (<i>Crassostrea gigas</i> and <i>C. brasiliiana</i>)	0,00	0,00	2,538.40	0,00
Scallop (<i>Nodipecten nodosus</i>)	0,00	0,00	13.40	0,00
Sururu (<i>Mytella falcata</i>)	2,133.30	0,00	0,00	0,00
Octopus (<i>octopus vulgaris</i>)	2,089.60	0,00	0,00	0,00
Clams (<i>Anomalocardia brasiliiana</i>)	1,863.60	0,00	0,00	0,00
Squid (<i>Loligo vulgaris</i>)	1,623.60	0,00	0,00	0,00

OTHERS	2,506.80	0,00	0,00	0,00
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Table 8: Current aquatic animal census data

Aquatic animal species	Total Number	Marine fisheries (% or no.)	Inland fisheries (% or no.)	Marine aquaculture (% or no.)	Fresh-water aquaculture (% or no.)
Fish	1,270,646.40	482,335.70 t	243,820.70 t	-	544,490.00
Crustaceans	128,794.90	57,344.80 t	5,779.50 t	65,670.60	-
Mollusc	32,531.11	13,989.40 t	-	18,541.70	-

Table 9: Aquatic animal and aquatic animal product trade data

Aquatic animals and aquatic animal products	Average annual import		Average annual export	
	Quantity (Kg)	Value (US\$)	Quantity (Kg)	Value (US\$)
Fish, crustaceans and molluscs	323,819,069	1,190,682,874	32,901,987	201,923,221
Oils	2,165,641	5,205,307	1,874,127	29,012,916
Can	20,735,893	62,103,020	4,969,873	19,972,104
Feed and Roe (breeding)	2,808,555	4,897,011	2,517,428	20,284,906
TOTAL	349,529,158	1,262,888,212	42,263,415	271,193,147

Table 10: Aquatic animal production (aquaculture)

	FISH		SHRIMP		MOLLUSCS	
	Quantity (tons)	Value (1 000 R\$)	Quantity (tons)	Value (1 000 R\$)	Quantity (tons)	Value (1 000 R\$)
BRAZIL	392 493	2 020 922	64 669	765 014	19 360	58 048
NORTH	72 969	406 592	40	320	8	50
Rondônia	25 141	123 146	-	-	-	-
Acre	3 864	24 288	-	-	-	-
Amazonas	15 064	98 853	-	-	-	-
Roraima	16 134	80 185	-	-	-	-
Pará	5 055	35 563	40	-	8	50
Amapá	452	3 277	-	-	-	-
Tocantins	7 259	41 280	-	-	-	-
NORTHEAST	76 393	441 036	64 270	-	87	928
Maranhão	16 926	103 789	50	-	-	-
Piauí	5 474	37 335	3 701	-	-	-
Ceará	30 670	169 360	33 950	-	-	-
Rio Grande do Norte	2 356	18 680	16 974	-	9	74
Paraíba	978	6 062	864	-	-	2
Pernambuco	3 114	17 195	3 241	-	-	-
Alagoas	600	3 554	-	-	14	68
Sergipe	5 420	31 151	2 481	-	-	-
Bahia	10 854	53 910	3 008	-	64	783
SOUTHEAST	50 058	235 529	58	-	181	2 321
Minas Gerais	15 742	84 175	14	-	-	-
Espírito Santo	6 490	27 511	38	-	-	-
Rio de Janeiro	1 111	7 483	6	-	93	1 032
São Paulo	26 715	116 360	-	-	88	1 289
SOUTH	88 063	369 854	302	-	19 083	54 749
Paraná	51 143	198 582	85	-	266	2 668
Santa Catarina	21 240	77 667	215	-	18 817	52 081
Rio Grande do Sul	15 680	93 605	2	-	-	-
MIDWEST	105 010	567 911	-	-	-	-
Mato Grosso do Sul	5 667	30 219	-	-	-	-
Mato Grosso	75 630	391 989	-	-	-	-
Goiás	22 913	141 703	-	-	-	-
Distrito Federal	800	4 000	-	-	-	-

IBGE, Diretoria de Pesquisas, Coordenação de Agropecuária, Pesquisa da Pecuária Municipal 2013.

Table 11: Economic data summary

National GDP	US\$ 903 billion / US\$ 2,253 billion USD**
National budget	
Agribusiness	US\$ 244 billion (27% of GDP) / US\$ 115 billion USD**
National budget Revenues	US 875.5 billion
Expenditures	US\$ 822.1 billion (2012 est.)
Livestock GDP	US\$ 71 billion (29% of Agribusiness GDP)
Annual public sector contribution to agriculture	136 billion Reais (US\$ 64 billion) 2013/14
Annual budget of the Veterinary Services	BR\$ 962 629 000. (2012) BR\$ 1 092 313 000(2011)
Fisheries GDP	US\$ 2.06 billion (2007)**
Aquaculture GDP**	
Annual budget of the Veterinary Services or Aquatic Animal Health Services	14 million Reais (annual budget of CGSAP)

* FAO source <http://www.fao.org/fishery/facp/BRA/en>

** There is no available data on the contribution of the different sectors to the GDP. The IBGE estimates in 2013 a combined contribution of 0.5% for the aquaculture, fisheries and plant extraction (extracao vegetal)

II.3 Context of the evaluation

II.3.A Availability of data relevant to the evaluation

A list of documents received by the Team before and during the OIE PVS Evaluation mission is provided in Appendix 6. All documents listed in Appendix 6 are referenced to relevant critical competencies to demonstrate the levels. Documents are also referenced to relevant critical competencies to support the related findings.

The following table provides an overview of the availability of the main categories of documents or data needed for the evaluation, taking into account the information requirements set out in the OIE Aquatic and Terrestrial Animal Health Codes. This overview shows that all necessary documentation was available and many of the key documents are published and accessible on national and international websites.

Table 12: Summary of data available for evaluation (the links to the various websites where information is available are presented in Appendix 6)

Main document categories	Data available in the public domain	Data accessible only on site or on request	Data not available
→ Aquatic Animal census:			
○ at 1st administrative level	✓		
○ at 2 nd administrative level	✓		
○ at 3rd administrative level	✓		
○ per animal species	✓		
○ per production systems			✓
→ Organisations charts			
○ Central level of the VS/AAHS	✓		
○ 2 nd level of the VS/AAHS	✓		
○ 3 rd level of the VS/AAHS		✓	
→ Job descriptions in the VS/AAHS			
○ Central levels of the VS/AAHS		✓	
○ 2 nd level of the VS/AAHS		✓	
○ 3 rd level of the VS/AAHS		✓	
→ Legislations, regulations, decrees ...			
○ Aquatic animal health and public health	✓		
○ Veterinary practice	✓		
○ Veterinary statutory body	✓		
○ Other professional authorities	✓		
○ Veterinary medicines and biologicals	✓		
○ Official delegation		✓	
→ Veterinary census			
○ Global (public, private, Veterinary, aquatic animal health professional, technical personnel)		✓	
○ Per level		✓	
○ Per function			✓
→ Census of logistics and infrastructures		✓	
→ Activity reports		✓	
→ Financial reports	✓		
→ Aquatic animal health status reports	✓		
→ Evaluation reports			✓

II.3.B General organisation of the Aquatic Animal Health Services

The MPA is the CA for AAHS coordination.

A political decision was made to extinguish MPA and merge all of the components of the AAHS under MAPA. Taking into consideration the transition had not been completed and there was no official document on the new organizational structure, the organization here described is the one before the transition, which was still operational at the time of visit.

The general coordination for AAH policies was with MPA the implementation at state level follows the one in place for other animal health policies (Figure X 2) and described in more detail on section CC I 6 A).

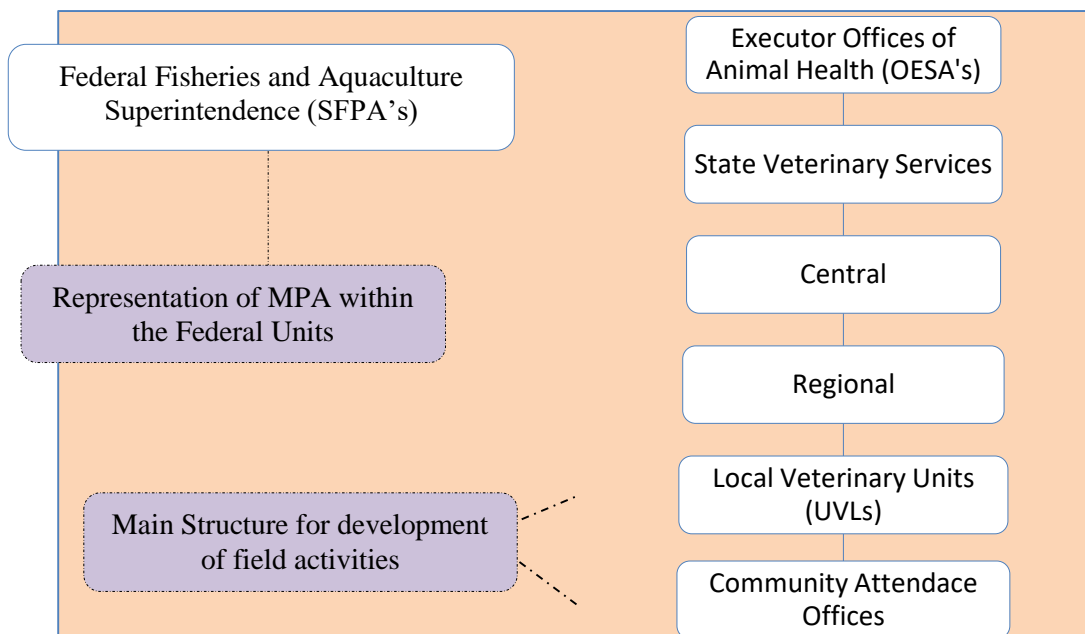
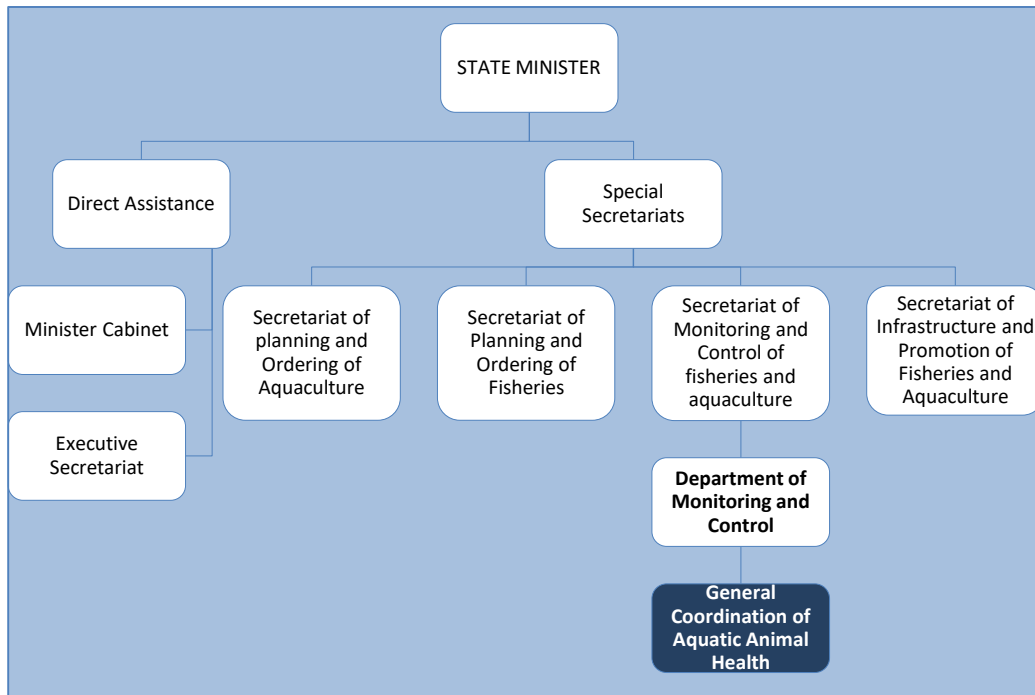


Figure 11: MPA Organogram

Veterinary Services

The Veterinary services in Brazil are coordinated by MAPA, who’s headquarters are located in Brasília. State governments are represented by State Secretariats for production or agriculture and related institutions. They are in charge of implementing programs at state level, registry of farms, control the transport of animals and its products (inside and outside states), developing information and animal sanitary surveillance systems at state level and human resource training programs. Local Veterinary services are generally organized at state, regional and local levels (municipalities).

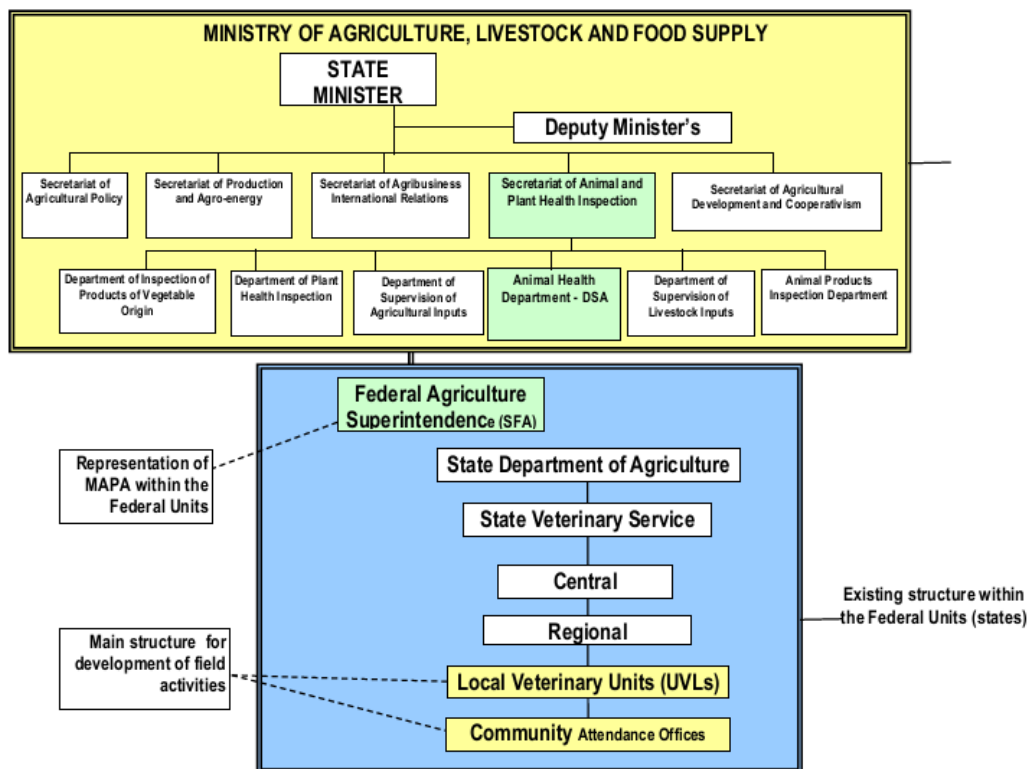


Figure 12: MAPA organogram

Veterinary Public Health Services

Veterinary Public Health Services are performed by MAPA, specifically by the Fish and Products Inspection Division (DIPES/CGI/DIPOA/MAPA), responsible for the supervision of establishments of fish products.

The Department of Inspection of Animal Products (DIPOA) is responsible for the inspection of all establishments that produce animal products and by-products. It is supervised by the Secretary of Plant and Health Defence (SDA), which is the central instance responsible for the inspection of animal products in the country.

Under DIPOA there is a General Coordination of Inspection (CGI), which coordinates all inspection divisions in DIPOA (meat, eggs, honey, dairy products and fish).



Figure 13: Organogram of DIPOA

The registration, approval and inspection of establishments can be performed at three levels: federal (SIF), state (SIE) and municipal (SIM). Establishments approved at federal level can trade products to different states or even export if approved for exportation while SIE and SIM establishments can only sell on their own state and municipality respectively.

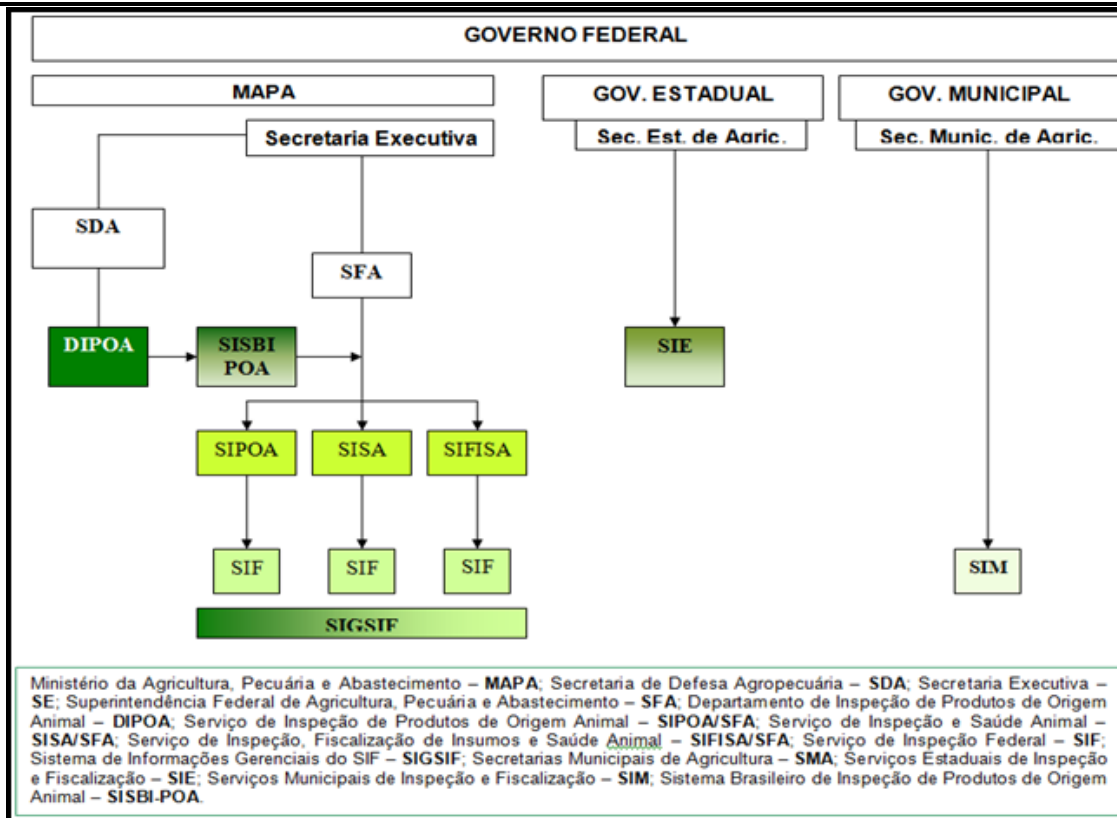


Figure 14: Inspection of Animal Products

Laboratory Services



The structure responsible for the provision of laboratory support to AAH policies is RENAQUA and it is described in section II. In addition there are six National Agricultural and Livestock Laboratories (LANAGROS), which are official MAPA laboratories for both animal health and food safety aspects, such as the national program of residues control.

The National Agriculture and Livestock Laboratories Network comprise LANAGROS and accredited laboratories. The General Coordination for Laboratory Support (CGAL) is responsible for the organization and working of the National Agriculture and Livestock Laboratories Network.






















II.3.C Aquatic animal disease occurrence

Information on aquatic animal disease occurrence from the OIE website.

Table 13: Disease status of the country (2014) (accessed on 20/10/15)³

Domestic		Wild		
Disease	Notifiable	Status	Notifiable	Status
Epizootic haemorrhagic disease		Absent (since Unknown)		Infection/infestation

Diseases never reported

Disease	Notifiable	Type of surveillance
Crayfish plague (<i>Aphanomyces astaci</i>)		General S
Epizootic ulcerative syndrome		General Surveillance
Infect. haematopoietic necrosis		General Surveillance
Infection with abalone herpes-like virus		General Surveillance
Infection with <i>Batrachochytrium dendrobatidis</i>		General Surveillance
Infection with <i>Bonamia exitiosa</i>		General Surveillance
Infection with <i>Bonamia ostreae</i>		General Surveillance
Infection with <i>Gyrodactylus salaris</i>		General Surveillance
Infection with <i>Marteilia refringens</i>		General Surveillance
Infection with ostreid herpesvirus-1 microvariant		General Surveillance
Infection with <i>Perkinsus olseni</i>		General Surveillance
Infection with ranavirus		General Surveillance
Infection with salmonid alphavirus		General Surveillance
Infection with <i>Xenohalotis californiensis</i>		General Surveillance
Infectious salmon anaemia virus (HPR-deleted or HPR0 genotypes) (Infection with)		General Surveillance
Japanese encephalitis		General Surveillance
Koi herpesvirus disease		General Surveillance
Taura syndrome		General Surveillance
Viral haemorrhagic septicaemia		General Surveillance
White tail disease		General Surveillance
Yellow head disease		General Surveillance

³ http://www.oie.int/wahis_2/public/wahid.php/Countryinformation/Animalsituation#

Information from MPA. Accessed on 3/10/15 (<http://www.mpa.gov.br/monitoramento-e-controle/sanidade-pesqueira/127-notificacoes-oficiais-de-doencas-de-animais-aquaticos>)

Diseases not reported in 2014



Disease	Domestic			Wild		
	Notifiable	Last occurrence	Surveillance	Notifiable	Last occurrence	Surveillance
Infectious hypodermal and haematopoietic necrosis		06/2013	General		Unknown	General
Infectious myonecrosis		14/02/2008	General		Unknown	General
Spring viraemia of carp		Unknown	General		Unknown	General
White spot disease		08/2013	General		Unknown	General

Table 14: Mollusc diseases notifications

	Immediate notification
Perkinsus marinus infection	01/2013
Restriction of movements of moluscs originated from Paraiba State	Portaria SEMOC - DOU

Table 15: Crustacean disease notifications

	Immediate notification	Follow up	Biannual report			
			02/2005	02/2010	01/2011	02/2011
White Spot Disease (WSD)	01/2005	02/2005	02/2005	02/2010	01/2011	02/2011
Infectious Mionecrosis virus(IMNV)	01/2008	01/2009	-			
Infectious hypodermal and hematopoietic necrosis (IHNV)	02/2009	01/2010	-			

II.4 Organisation of the evaluation

II.4.A Timetable of the mission

Appendix 3 provides a list of persons met; Appendix 4 provides the timetable of the mission and details of the facilities and locations visited by the OIE PVS Team. Appendix 5 provides the international air travel itinerary of Team members.

The Appendix 5 indicates the travel undertaken by the assessors.

II.4.B Categories of sites and sampling for the evaluation

Table 16 lists the categories of sites relevant to the evaluation and the number of each category of site in the country. It indicates how many of the sites were visited, in comparison with the suggested sampling framework (“ideal” sampling) recommended in OIE PVS Manuals. Appendix 4 provides a detailed list of sites visited and meetings conducted.

The sites and institutions visited were agreed by the OIE PVS Team in order to obtain sufficient evidence for the PVS Evaluation of the AAHS. When evidence collected for the terrestrial PVS Follow up Brazil 2014 report was used it is clearly indicated in this report

Brazil is an extremely large and diverse country in all aspects. Its federal system allows for regulatory framework and policy implementation to be different between states. The aquaculture sector, although still modest in comparison with other livestock sectors in the country, is large and includes many different species and production systems. It was not possible during a short mission to comprehensively describe all different aspects. Taking into account the size of the country, the time constraints and the high number of sites, the assessors were not able to provide for representative sampling in general.

Table 16: Site sampling

	Terminology or names used in the country	Number of sites	Actual sampling
GEOGRAPHICAL ZONES OF THE COUNTRY			
Climatic zone			
Topographical zone			
Agro-ecological zone			
ADMINISTRATIVE ORGANISATION OF THE COUNTRY			
1st administrative level	<i>Nivel federal</i>	1	1
2nd administrative level	<i>Nivel estadual</i>	27	6
3rd administrative level	<i>Nivel municipal</i>	5565	1
4th administrative level			
Urban entities			
VETERINARY SERVICES OR AQUATIC ANIMAL HEALTH SERVICES ORGANISATION AND STRUCTURE			
Central (Federal/National) VS/AAHS	<i>Nivel federal</i>	1	1
Internal division of the central VS/AAHS	<i>Nivel estadual</i>	27	4
Visit to the Aquatic Animal Health Service (AAHS) at Minas Gerais - Instituto Mineiro de Agropecuária (IMA).			
Visit to the AAHS at Rio Grande do Norte - Instituto de Defesa e Inspeção Agropecuária (IDIARN)			
Visit to the AAHS at Mato Grosso, the Instituto de Defesa Agropecuária do Estado de Mato Grosso (INDEA)			
Visit to the AAHS at Santa Catarina - Companhia Integrada de Desenvolvimento Agrícola de Santa Catarina (CIDASC)			
1 st level of the VS/AAHS	<i>Regional coordination office</i>	291	04

2 nd level of the VS/AAHS	LVU	1700	01
3 rd level of the VS/AAHS	Escritorios	4670	00
Veterinary organisations (VSB) unions...		1	1 (CFMV)
FIELD AQUATIC ANIMAL HEALTH NETWORK			
Field level of the VS/AAHS (aquatic animal health)			
Private Veterinary sector			
Other sites			
Field - marine shrimp farming			01
Field - fish farming (amazon's fish and pantanal fish) (Tambaqui - Colossoma macropomum/ Pintado - Pseudoplatystoma sp./ Pirarucu - Arapaima gigas)			02
Field - bivalves molluscs farming and shellfish processing plant			01
VETERINARY MEDICINES & BIOLOGICALS			
Production sector			
Import and wholesale sector	Grossistas	700	0
Retail sector			
Other partners involved			
LABORATORIES			
National labs	RENAQUA	4	2
Visit to the Central Laboratory (AQUACEN – Animal Health), of the National Reference Laboratory for Aquatic Animal Diseases			
Visit to the LAQUA – Itajaí (biotoxins)			
Regional and local labs		0	
Associated, accredited and other labs	Accredited private laboratories	0	0
AQUATIC ANIMAL AND ANIMAL PRODUCTS MOVEMENT CONTROL			
Bordering countries	Argentina, Bolivia, Columbia, France, Peru, Guyana, Paraguay, Surinam, Uruguay, Venezuela	10	0
Airports and ports border posts		26 31	1
Main terrestrial border posts		26	0
Minor terrestrial border posts		27	0
Quarantine stations for import			
Aquatic animal quarantine unit for ornamental purpose		18	1
Internal check points			
Live aquatic animal markets			
Zones, compartments, export quarantines			
PUBLIC HEALTH INSPECTION OF AQUATIC ANIMALS AND AQUATIC ANIMAL PRODUCTS			
Export processing plants		82	
National market processing plants			
Local market processing plants			
On farm processing sites			
On farm processing sites - Shrimp			1
Processing sites			
Retail outlets (shops, restaurants)			
TRAINING AND RESEARCH ORGANISATIONS			
Veterinary university	Publicas Privadas	68 140	1 0
Aquatic animal health professional training schools			
Fisheries, aquaculture and Veterinary research organisations			2
Fisheries, aquaculture and Veterinary research organisations : MPA's Collaboration Network in Veterinary Epidemiology (AQUAEPI)			
Fisheries, aquaculture and Veterinary research organisations : Agricultural Research and Rural Extension Agency of Santa Catarina (EPAGRI)			

STAKEHOLDERS' ORGANISATIONS			
Agricultural Chamber / organisation	National Council of Aquaculture and Fisheries (Conselho Nacional de Aquicultura e Pesca – CONAPE)	1	1
National aquaculture farmers organisations- Shrimps (ABCC)			1
National aquaculture farmers organisations – fish (Peixe Br)			1
National aquaculture farmers organisations – ornamentals (ABLA)			1
Fishermen union (SINTRAPESCA)			1
Fishing boat owners association (SINDIP),			1
Consumer organisations			0

PART III: RESULTS OF THE EVALUATION & GENERAL RECOMMENDATIONS

This evaluation identifies the strengths and weaknesses of the Veterinary services, and makes general recommendations.

FUNDAMENTAL COMPONENTS

1. HUMAN PHYSICAL AND FINANCIAL RESOURCES
2. TECHNICAL AUTHORITY AND CAPABILITY
3. INTERACTION WITH INTERESTED PARTIES
4. ACCESS TO MARKETS

The activities of the Veterinary services and Aquatic Animal Health Services are recognised by the international community and by OIE Members as a '**global public good**'. Accordingly, it is essential that each country acknowledges the importance of its role and responsibilities and gives them the human and financial resources needed to fulfil their responsibilities.

OIE PVS Evaluations examined each critical competency under the 4 fundamental components, listed strengths and weaknesses where applicable, and established a current level of advancement for each critical competency. Evidences supporting this level are listed in Appendix 6. General recommendations were provided where relevant.

The current level of advancement for each critical competency is shown in cells **shadowed in grey** (15%) in the table.

III.1 Fundamental component I: human, physical and financial resources

This component of the evaluation concerns the institutional and financial sustainability of the VS/AAHS as evidenced by the level of professional/technical and financial resources available and the capacity to mobilize these resources. It comprises fourteen critical competencies:

Critical competencies:

Section I-1	Professional and technical staffing of the VS or AAHS A. Veterinary or aquatic animal health professionals (university qualification) B. Aquatic animal health professional and other technical personnel (non university level qualification)
Section I-2	Competencies of Veterinarians or aquatic animal health professionals, and other technical personnel A. Professional competencies of Veterinary or aquatic animal health professionals (university qualification) B. Competencies of aquatic animal health professional and other technical personnel (non university level qualification)
Section I-3	Continuing education
Section I-4	Technical independence
Section I-5	Stability of structures and sustainability of policies
Section I-6	Coordination capability of the VS or AAHS A. Internal coordination (chain of command) B. External coordination
Section I-7	Physical resources
Section I-8	Operational funding
Section I-9	Emergency funding
Section I-10	Capital investment
Section I-11	Management of resources and operations

Aquatic Code Reference(s):

Points 1-7, 9 and 14 of Article 3.1.2. on Fundamental principles of quality: Professional judgement / Independence / Impartiality / Integrity / Objectivity / Aquatic animal health legislation and regulations / General organisation / Procedures and standards / Human and financial resources.

Terrestrial Code Reference(s):

Point 1 of Article 3.2.2. on Scope.

Points 1 and 2 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.

Point 2 of Article 3.2.4. on Evaluation criteria for quality system: "Where the Veterinary Services undergoing evaluation... than on the resource and infrastructural components of the services".

Article 3.2.5. on Evaluation criteria for human resources.

Points 1-3 of Article 3.2.6. on Evaluation criteria for material resources: Financial / Administrative / Technical.

Points 3 and Sub-point d) of Point 4 of Article 3.2.10. on Performance assessment and audit programmes: Compliance / In-Service training and development programme for staff.

Article 3.2.12. on Evaluation of the Veterinary statutory body.

Points 1-5 and 9 of Article 3.2.14. on Organisation and structure of Veterinary Services / National information on human resources / Financial management information / Administration details / Laboratory services / Performance assessment and audit programmes.

<p>I-1. Professional and technical staffing of the Veterinary Services (VS) or Aquatic Animal Health Services</p> <p><i>The appropriate staffing of the VS or AAHS to allow for Veterinary and aquatic animal health professional and technical functions to be undertaken efficiently and effectively.</i></p> <p>A. Veterinary or aquatic animal health professionals (university qualification)</p>	Levels of advancement
	1. The majority of Veterinary and aquatic animal health professional positions are not occupied by appropriately qualified personnel.
	2. The majority of Veterinary and aquatic animal health professional positions are occupied by appropriately qualified personnel at central and state / provincial levels.
	3. The majority of Veterinary and aquatic animal health professional positions are occupied by appropriately qualified personnel at local (field) levels.
	4. There is a systematic approach to defining job descriptions and formal appointment procedures for Veterinarians and aquatic animal health professionals.
5. There are effective management procedures for performance assessment of Veterinarians and aquatic animal health professionals.	

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L22, PP4, PP6, PP7, PP9, PP14, PP17

Findings:

At the time of visit, AAHS was in transition, aimed to merge all of the components of the AAHS under the MAPA. Taking into consideration this transition had not been completed yet and there was no official document on new organizational structure, these findings are related to the organizational structure before the transition, which was still operational at the time of visit.

Before this political decision was made, the CA for AAHS was MPA, who's headquarters are located in Brasília. All the relevant AAH activities and regulation of sanitary conditions of the primary production of fishery products (including freezer vessels, fish farms and fish landing sites) in Brazil are performed or coordinated by the General Coordination of Aquatic Animal Health (CGSAP), located at the Secretariat of Monitoring and Control of Fisheries and Aquaculture (SEMOC). However, the Veterinary Public Health Services is performed by MAPA, specifically by the Fish and Products Inspection Division (DIPES/CGI/DIPOA/MAPA), responsible for the supervision of establishments of fish products.

CGSAP has 4 Veterinarians, 1 biologist and 1 jurist. Although all the Veterinary and other technical positions are defined with clear and systematic job description in place, due to insufficient number of staff, they are performing tasks other than those specific for the post. Technical positions are occupied with the appropriately qualified personnel, however, only one position is occupied with permanent civil servant employee, and the rest of the professionals have temporary contracts. There is no specific separate structure of AAHS at the state, regional and local level, therefore, CGSAP is implementing AAH policies through the SVS's. Structure of the SVS's described in the PVS Evaluation Follow-up Report 2014, remain the same. There is a general entrance examination procedure that applies to all public servants in Brazil, which along with clear and systematic job description ensures all the Veterinary and technical positions are occupied by personnel with appropriate formal qualifications. In all of the states visited, most of the official Veterinarians are not solely dedicated to the aquatics and information on exact number of official Veterinarians involved in AAHS was not available.

Some states use the authority to delegate official tasks to private Veterinarians (issuing GTA permit for live animal movements). In the case of Minas Gerais, these private Veterinarians are the technicians responsible for each farm. There is a defined procedure in place for the delegation of tasks that ensures appropriate formal qualification of authorized Veterinarians. There is a total number of 104 393 Veterinarians in the whole of Brazil, registered by the CFMV, however, there was no information available on the number of Veterinarians providing services to the fish farmers.

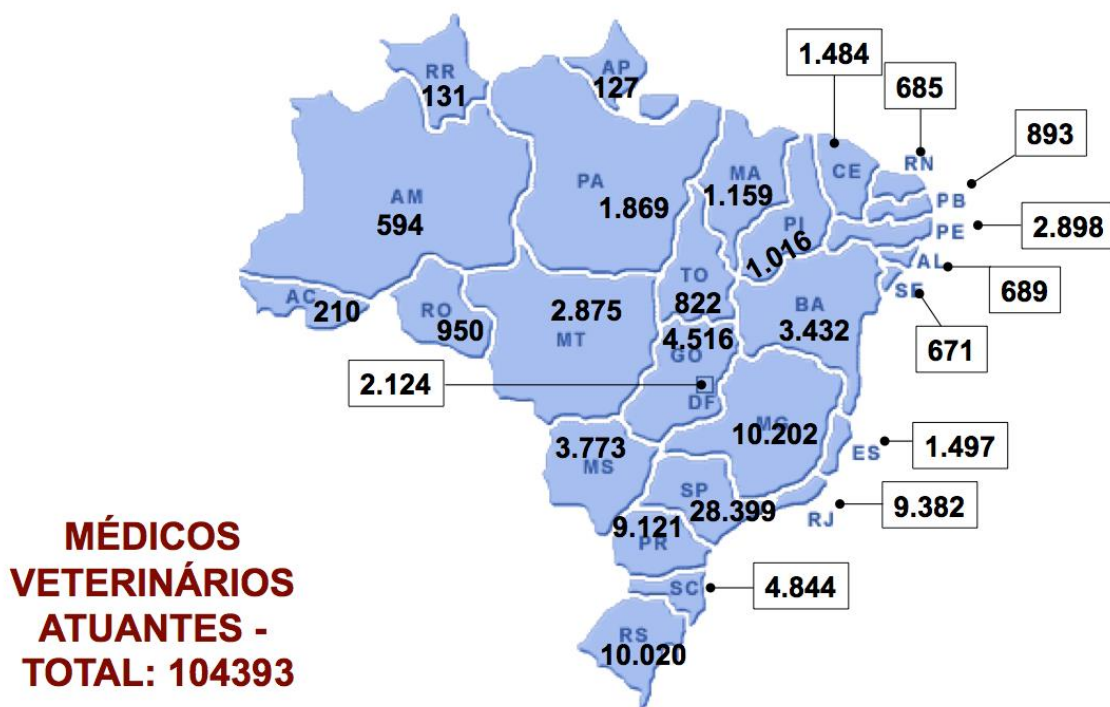


Figure 15: Total number of registered Veterinarians (Source CFMV)

The CA for the Veterinary public health issues, including food safety of aquaculture and fishery products is MAPA.

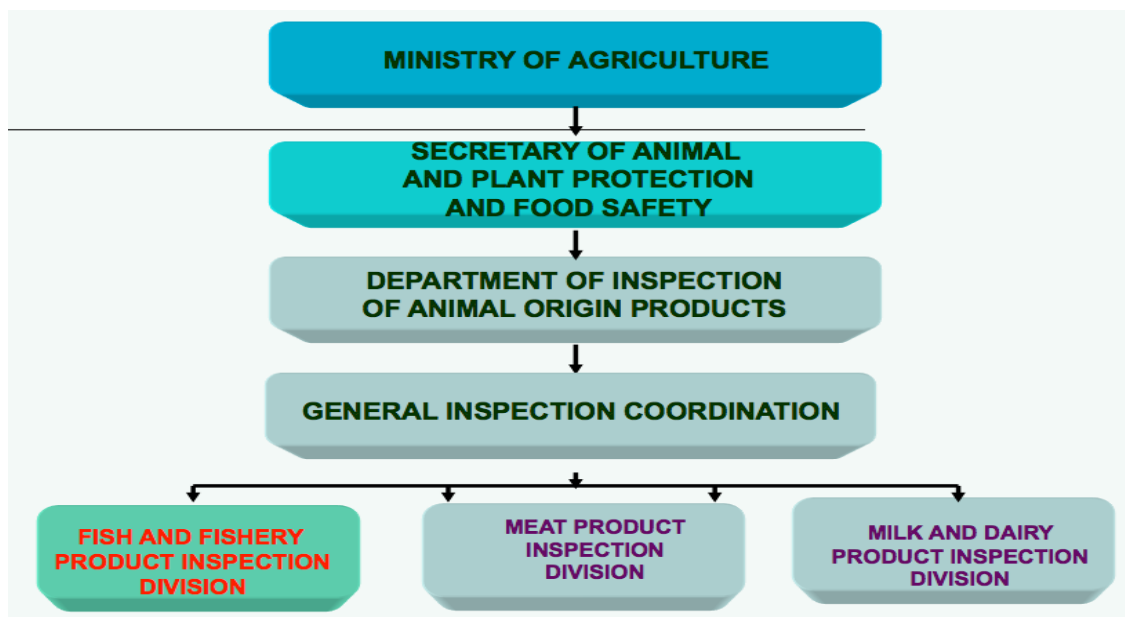


Figure 16: Organogram Department of Inspection - MAPA

Fish and Fishery Products Division (DIPES) within the General Inspection Coordination is the unit responsible for the official controls of the food business establishments approved for placing fish and fishery products on the international and national (trade between the states) market. There is a total number of 96 federal Veterinary inspectors in the states, out of which 29 are involved part-time or full-time in the official controls of the above mentioned establishments. Table below (PVS Evaluation Follow-up Report 2014) shows the distribution of the public sector Veterinarians by the state and includes federal and state CA. It was not

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- Although there are certain provisions in legislation that foresees involvement of “legally enabled professionals” in AAH activities, the role of AAHP’s is somewhat unclear and questionable.

Recommendations:

- Strengthen and expand the administrative capacity and delegating authority of the central authority (CGSAP);
- Clearly define the roles and professional qualifications of “legally enabled professionals” to avoid misinterpretation of legal provisions and to ensure involvement of AAHP’s whenever CA consider they are needed to strengthen its capacities to develop and implement programs;
- Clearly define the obligation of the state to ensure sufficient human resources to execute the agreement with the federal CA and regularly audit the capacity of SVS’s to implement programs.

B. Aquatic animal health professional and other technical personnel (non university level qualification)	Levels of advancement
	1. The majority of aquatic animal health professionals and other technical positions are not occupied by personnel holding appropriate qualifications.
	2. The majority of aquatic animal health professionals and other technical positions at central and state / provincial levels are occupied by personnel holding appropriate qualifications.
	3. The majority of aquatic animal health professionals and other technical positions at local (field) levels are occupied by personnel holding appropriate qualifications.
	4. The majority of aquatic animal health professionals and other technical positions are effectively supervised on a regular basis.
5. There are effective management procedures for formal appointment and performance assessment of aquatic animal health professionals and other technical personnel.	

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E1; PP14, PP15

Findings:

MPA doesn't have AAHP's (non-university level qualification) in its structure. Technical positions of Veterinary technicians exist in the DIPOA structure, where they perform certain tasks of official controls in the approved establishments, and in structures of SVS's where they perform various tasks related to animal health and Veterinary public health.

There is a public entrance procedure in place that ensures all the positions are occupied with appropriately qualified personnel. Usually those are high school zoo technicians and agriculture livestock technicians. None of those have specific training in AAH although some schools provide basic training on aquaculture. Information about number and distribution of Veterinary paraprofessionals involved in AAH and food safety of fish and fishery products was not available, as in most of the cases they perform other tasks as well (related to terrestrial animal health).

According to the PVS Follow-up Report 2014, there was a total number of 8,745 Veterinary paraprofessionals employed in public VS (federal and state level). Agriculture livestock technicians are registered by the agriculture statutory body.

At federal level, a total of 2,157 Veterinary technicians are employed throughout all States.

The overall distribution of zoo technicians across the country is presented in the map bellow, provided by the CFMV during the PVS follow-up mission. Information on total numbers and distribution of those involved in AAH programs is not available at the CFMV.

The MPA is promoting courses for aquaculture technicians. The training provided focus mostly on husbandry/production aspects.

ZOOTECNISTAS ATUANTES - TOTAL: 8.447


Figure 17: Distribution of technicians

Strengths:

- The MPA is promoting courses for aquaculture technicians;
- Public entrance procedure ensures appropriate level of qualification for the technical staff in public service;
- Technical staff is managed and supervised by the official Veterinarians.

Weaknesses:

- No specific data on number, distribution and qualification of technical personnel (non-university qualification) involved in implementation of AAH programmes;
- No evidence of specific aquatic courses in initial training of technical staff.

Recommendations:

- Collate and analyse data on number, distribution and qualification of technical staff non-university qualification involved in AAH programs;
 - Review current roles of technical staff and redefine it, if needed, to efficiently implement AAH programs;
 - Identify non-university training programs that support generic training in AAH, such as, laboratory technicians, research assistants, field technicians, policy officers, aquaculture husbandry managers/technicians, etc.
-

I-2. Competencies of Veterinarians or aquatic animal health professionals, and other technical personnel	Levels of advancement	
	<i>The capability of the VS or AAHS to carry out their Veterinary or aquatic animal health professional practices and technical functions; measured by the qualifications of their personnel.</i>	1. The Veterinarians' or aquatic animal health professionals' practices, knowledge and attitudes are of a variable standard that usually allow for elementary clinical and administrative activities of the VS or AAHS.
		2. The Veterinarians' or aquatic animal health professionals' practices, knowledge and attitudes are of a uniform standard that usually allow for accurate and appropriate clinical and administrative activities of the VS or AAHS.
		3. The Veterinarians' or aquatic animal health professionals' practices, knowledge and attitudes usually allow undertaking all professional/technical activities of the VS or AAHS (e.g. epidemiological surveillance, early warning, public health, etc.).
	A. Professional competencies of Veterinary or aquatic animal health professionals (university qualification) including the OIE Day 1 competencies for Veterinarians	4. The Veterinarians' or aquatic animal health professionals' practices, knowledge and attitudes usually allow undertaking specialized activities as may be needed by the VS or AAHS.
		5. The Veterinarians' or aquatic animal health professionals' practices, knowledge and attitudes are subject to regular updating, international harmonisation or evaluation.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP6, PP14, PP17, E33, E34, E35

Findings:

AAHP activities are implemented by the VS structure, so general remarks noted in the PVS Evaluation Follow-up Report 2014 regarding initial training of Veterinarians are applicable also for this critical competency. The team had the opportunity to visit only one Veterinary school and these findings are based on that visit and interviews with professors, public and private sector Veterinarians and CMFV as the Veterinary statutory body in Brazil.

CMFV has provided updated information on number of VEE's and their distribution across the country, which shows that high number of VEE has increased from 202 in 2014 to 227 in 2015; however, CMFV impression is that the quality of training courses has not improved as needed. Although the CMFV formally had the opportunity to present their views on development of Veterinary courses, they have the impression that the CA had not fully respected remarks and suggestions they made.

A formal procedure is in place by which the Ministry of Education (Ministério da Educação, ME), through established "curricular directives", ensures the general topics that must be covered by each study course for each university program and the total number of class hours (4600 hours). The Federal Council of Education has put in place a university ranking system that includes several criteria and the evaluation through a unique test of a random number of students per year across universities⁴. A federal agency is also responsible for the evaluation of post-graduation degrees (see <http://www.capes.gov.br/>). Each teaching unit is free to decide regarding the topics covered in a course, while still adhering to general directives established by the *ad-hoc* education commission of the ME. Considering that most of the VEE's are private (approximately 70%), curriculums are adapted to student demands for better acceptability. Since aquaculture is still a minor employer, the market has not yet shown the need for technical expertise for AAH and consequently students do not often take aquatic courses, when offered as an optional. Many of the private VEE's do not offer courses on AAH, even as optional. Some public VEE's, for example, Minas Gerais and Parana Federal Veterinary University, recognized the need and announced courses on AAH to be included in curriculums and even specific training courses for the AAHP's. Others such as the Brasilia Federal University have included Aquaculture as an optional curricular subject, but the focus is mainly on production and husbandry aspects.

⁴ Available at: <http://portal.inep.gov.br/superior-condicoesdeensino>.

OIE recommendation on competencies of “day one graduates” requires the VEE to provide *minimum competencies needed by graduating Veterinarians to be adequately prepared to participate in National Veterinary Services (both public and private sector) at the entry level.*

To comply with this recommendation certain initial training courses will have to include AAH as a standard part of curriculums to ensure sufficient number of graduating Veterinarians qualified to implement official AAH programs.

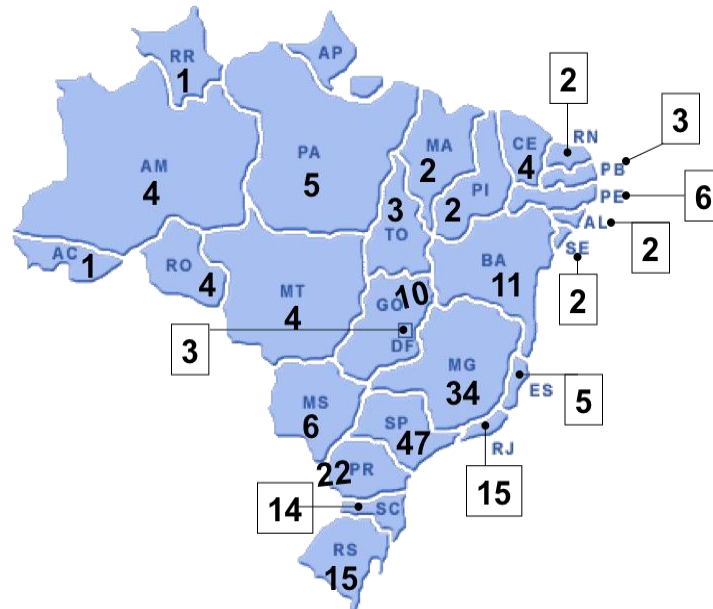


Figure 18: Distribution of VEE's by states, 2015 (CFMV presentation)

There are 32 education establishments providing various biotechnology training courses (Aquicultura Tecnólogo) for AAHP's; Engenharia de Aquicultura; Engenharia de Pesca e Aquicultura; Engenharia de Pesca. Due to time constraints, the team did not have the opportunity to visit any of those establishments, but in general, these courses are focused mainly on biotechnology. These establishments produce some 2000 graduates per year.

In three of the states visited the Veterinarians responsible had post graduate training in the field of AAH. However, in most of the states, AAH programs are at a very early stage of implementation, if any, and it is expected the need for additional human resources, including AAHP's and other technical personnel will increase.

The CA has recognised this challenge and tried to develop certain flexible provision in legislative framework that regulates usage of VMP's in aquaculture and issuance of GTA. On the other hand, the flexibility of these provisions is the source of concern for the VSB, which has to be taken into consideration. Establishments are obliged to have a technical person responsible for AAH issues, some are Veterinarians and some have other university qualification (aquaculture technologists, aquaculture engineers, oceanographers). Their responsibilities and competencies should be more specifically defined if the CA decides to delegate specific tasks of AAH programs.

Strengths:

- Established formal procedures to ensure quality of University level education;
- Some VEE's have AAH courses as an optional;
- Some VEE's have developed AAH courses as a standard part of curriculum and will be implemented from 2016/2017.

Weaknesses:

- There was no evidence any of VEE providing AAH courses as a standard part of the curriculum, which is not in line with the OIE recommendation on competencies of “day one graduates”;
- MPA and CFMV do not have the authority to ensure compliance with the OIE recommendation on competencies of “day one graduates”.

Recommendations:

- Define the number of professionals (Veterinarians and AAHP's) needed in long term to implement national AAH programs;
- Define the roles of AAHP's for current and future AAHS. Such as, researchers, epidemiologists, diagnostics development, laboratory staff, emergency response specialists, farm health managers, policy writers, policy implementation staff for AAHS;
- Define the minimum number of VEE's needed to provide *minimum competencies needed by graduating Veterinarians to be adequately prepared to participate in AAHS at the entry level*;
- Define the University level courses offering generic training that would support AAHS;
- Communicate national AAHS needs to the ME for the purposes of curriculum planning.

Table 18: Private and public Brazilian vet schools (Source EMBRAPA - updated July/2015)

REGIONS	STATES	NUMBER OF VET SCHOOLS	NUMBER OF CAMPUS
NORTH	Acre	1	1
	Amazonas	4	4
	Amapá	0	0
	Pará	4	6
	Rondônia	4	5
	Roraima	1	1
	Tocantins	3	4
NORTHEAST	Alagoas	2	3
	Bahia	11	14
	Ceará	4	4
	Maranhão	1	3
	Paraíba	3	4
	Pernambuco	5	7
	Piauí	1	1
	Rio Grande do Norte	2	2
Sergipe	2	4	
SOUTHEAST	Espírito Santo	5	10
	Minas Gerais	31	41
	Rio de Janeiro	13	16
	São Paulo	38	59
SOUTH	Paraná	21	36
	Rio Grande do Sul	13	24
	Santa Catarina	11	18
MIDWEST	Distrito Federal	4	4
	Goiás	9	11
	Mato Grosso do Sul	6	11
	Mato Grosso	3	5
TOTAL		202	298

B. Competencies of aquatic animal health professionals and other technical personnel (non university level qualification)	Levels of advancement
	1. The majority of aquatic animal health professional and other technical personnel have no formal entry-level training.
	2. The training of aquatic animal health professional and other technical personnel is of a variable standard and allows the development of only basic competencies.
	3. The training of aquatic animal health professional and other technical personnel is of a uniform standard that allows the development of only basic specific competencies.
	4. The training of aquatic animal health professional and other technical personnel is of a uniform standard that allows the development of some advanced competencies.
5. The training of aquatic animal health professional and other technical personnel is of a uniform standard and is subject to regular evaluation and/or updating.	

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP14, PP15, PP17

Findings:

As mentioned above, MPA does not have any AAHP's (non-university qualification) in its structure for the implementation of AAH programs. Implementation is done by SVS human resources. Considering the early stage of development of AAH programs in most of the states, it is expected that the need for additional human resources of non-university level qualification will also rise with the expanded AAH activities. Currently, Veterinary paraprofessionals within the public Veterinary sector are performing VPH and AAH tasks under the supervision of official Veterinarians and they usually have the non-university qualification of zoo technician or agriculture technician. The team did not have the possibility to visit any of these education establishment, but interviews with some of the staff during visit indicated that these initial trainings do not include courses on AAH.

Strengths:

- For the implementation of AAH and VPH programs the only technical personnel used are the technical staff within the organised structure of state Veterinary services and federal inspection service;
- Technical staff in state Veterinary services and federal inspection service has high school qualification and they perform under the guidance and supervision of official Veterinarians.

Weaknesses:

- There is no data on number and qualification of technical personnel involved in AAH activities;
- The team has no evidence that training institutions have basics of aquatic animal health included in curriculums.

Recommendations

- Collect and analyse information on number, distribution and qualification of technical personnel involved in AAH activities and define number and qualification of technical personnel needed for expanded activities once the National Aquatic Animal Health Program will be fully implemented in all relevant states;
- Identify non-university training programs that support generic training in AAH, such as, laboratory technicians, research assistants, field technicians, policy officers, aquaculture husbandry managers/technicians, etc.

I-3. Continuing education (CE) ⁵	Levels of advancement
<i>The capability of the VS or AAHS to maintain and improve the competence of their personnel in terms of relevant information and understanding; measured in terms of the implementation of a relevant training programme.</i>	1. The VS or AAHS have no access to Veterinary, professional or technical CE.
	2. The VS or AAHS have access to CE (internal and/or external programmes) on an irregular basis but it does not take into account needs, or new information or understanding.
	3. The VS or AAHS have access to CE that is reviewed annually and updated as necessary, but it is implemented only for some categories of the relevant personnel.
	4. The VS or AAHS have access to CE that is reviewed annually and updated as necessary, and it is implemented for all categories of the relevant personnel.
	5. The VS or AAHS have up-to-date CE that is implemented for all relevant personnel and is subject to regular evaluation of effectiveness.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E25, E51, E75, E76, E77, E78, E79, E80, PP14, PP15, <http://enagro.agricultura.gov.br/>

Findings:

The MPA offers three specific training programmes for AAHS for the states that signed the agreement with MPA on the implementation of AAH programs: 1) 24 hour course on AAH in bivalve mollusc production; 2) 24 hour course on AAH in aquaculture and; 3) 24 hour course on AAH in shrimp production. These courses consist of a theoretical and practical part and include lessons on production systems, diseases, sampling, diagnostics, prophylactic and therapeutic treatments, monitoring programs, movement controls and biosecurity.

AQUACEN has developed and is providing a 16 hour training course on sampling (theoretical and practical).

These courses have been provided to several states that have signed the agreement with the MPA. The responsibility to manage continuing education of SVS staff (assessments of needs, selection of participants) is the onus of the state CA.

Continuous education for the Veterinary inspectors at the border inspection posts and federal staff performing official controls in the food business establishment approved for placing aquaculture products on the international market and inter-states market is the responsibility of MAPA. Most of the federal staff interviewed during field visits, did not receive any trainings on the aquatics. MAPA has established ENAGRO (Escola Nacional de Gestao Agropecuaria) as a school for continuous professional development of all MAPA staff, aimed to develop specific training programmes tailored to meet the objections of MAPA (<http://enagro.agricultura.gov.br/>). ENAGRO is operational and providing distance learning courses and class courses for professional development; however, it is not yet offering any courses with specific topics on aquatics.

There is no information available on continuing education of municipality Veterinarians.

All the private Veterinarians, candidates to perform mandatory delegated tasks take training courses for accreditation; however, this training is mainly focused on the administrative aspects of GTA and does not contain any specific topics related to AAH. CFMV plan to offer specific courses on AAH to private Veterinarians that provide services to aquaculture farmers.

Some VEE's offer biomedicine postgraduate courses for AAH and ten universities also offer biotechnology postgraduate courses on aquatics.

⁵ Continuing education includes Continuous Professional Development (CPD) for Veterinary, or AAHP's and other technical personnel.

Professional associations (ABCC and ABLA) are also offering some training for members in AAH issues, but these cannot be considered as formal continuous education.

Strengths:

- MPA has developed and organized comprehensive training courses for some states that concluded the agreement with MPA;
- MAPA established a school for professional development of MAPA staff;
- CFMV plan to start in 2016 with training courses for private Veterinarians that provide services to aquaculture farmers;
- The preparation of manuals, standard operating procedures and work instructions to support the implementation of the national aquatic health plan.

Weaknesses:

- Most of the staff from SVS's, involved in AAH programs have not received any training specific for AAH;
- Most of the DIPES staff did not receive any training in past two years due to the lack of resources;
- Border Veterinary inspection staff did not receive any specific training on AAH;
- Private Veterinarians did not receive any training for AAH.

Recommendations:

- Analyse specific needs of MAPA staff and develop training programs on AAH and VPH tailored to specific needs for different roles;
- Ensure all the SVS staff and municipality Veterinarians have access to continuous professional development;
- Consider the development of a comprehensive set of manuals to complete the ones already available for AAH, for example:
 - Development of a suite of national AAH standard diagnostic procedures and conduct test validation and proficiency programs throughout the country
 - Updated sampling, sample preparation and sample submission procedures
 - Develop an emergency response manual and conduct a simulation exercise
 - Develop a decontamination manual (or adapt OIE guidelines and conduct training as part of a simulation exercise)
 - Develop a disposal manual (or adapt OIE guidelines and conduct training as part of a simulation exercise)
 - Develop an on-farm biosecurity and health management manual
 - Develop a national endemic/exotic disease field guide
 - Consider developing or upgrading other important regulatory Standard Operating Procedures and Work Instructions relevant to AAHS.

I-4. Technical independence	Levels of advancement
<i>The capability of the VS or AAHS to carry out their duties with autonomy and free from commercial, financial, hierarchical and political influences that may affect technical decisions in a manner contrary to the provisions of the OIE (and of the WTO SPS Agreement where applicable).</i>	1. The technical decisions made by the VS or AHHS are generally not based on scientific considerations.
	2. The technical decisions take into account the scientific evidence, but are routinely modified to conform to non-scientific considerations.
	3. The technical decisions are based on scientific evidence but are subject to review and possible modification based on non-scientific considerations.
	4. The technical decisions are made and implemented in general accordance with the country's OIE obligations (and with the country's WTO SPS Agreement obligations where applicable).
	5. The technical decisions are based only on scientific evidence and are not changed to meet non-scientific considerations.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E69; RISK ANALYSIS_NT 05 CGSAP; RISK ANALYSIS_NT 11 CGSAP; RISK ANALYSIS_NT 14 CGSAP; <http://www.mpa.gov.br/monitoramento-e-controle/sanidade-pesqueira/autorizacao-de-importacao>

Findings:

The delineation of responsibilities in the AAHS between different CA's is clear and each must ensure that technical decisions are based on scientific evidence and be free from commercial and political influences. The MPA is the CA responsible for the development of AAH policies and programs and IRA's. However, not all of the decisions are made based on technical notes by the CGSAP, but driven by the political influence to protect Brazilian producers. Even if such a decision happened once and was withdrawn, it may create lack of confidence and weaken the authority of the governmental body, leading to lack of cooperation. To avoid this situation in the future, CGSAP is publishing all the IRA's on the MPA website, which makes the process more transparent and more resistant to any kind of non-scientific considerations.

AAH policies and programs are implemented by the SVS and it is their responsibility to ensure that technical decisions are made based on scientific considerations. Although SVS are not directly subordinated to the MPA, agreements concluded for the financing arrangement to support AAH programs, gives authority to the MPA to require guarantees from the SVS that all the duties performed for the implementation of the agreement will be free from any political, commercial or other non-scientific considerations.

Remarks made at the PVS Evaluation Follow-up Report 2014 related to MAPA and accredited private Veterinarians are applicable here also. Private Veterinarians accredited for issuing GTA to the fish farmers are paid directly from them for their services and this situation might represent potential conflict of interests.

There are also other factors that might potentially influence the autonomy of staff in performing official duties such as: absence of continuing education, temporary employment i.e. only one professional out of five staff in the CGSAP is a permanent public servant, high work load due to insufficient number of staff (or inefficient work activity planning); inadequate vehicles i.e. without air conditioning at extremely high temperatures. All of these factors should be taken into account when auditing performance of the staff at all levels.

Strengths:

- MPA is doing IRA's based on scientific evidence and making it publicly available on the official web pages;
- In general, the salary level in public sector is attractive to Veterinarians;

Weaknesses:

- Accredited Veterinarians are paid directly from the farmers for the official tasks, which might lead to potential conflict of interest and influence their autonomy;
- Most of the staff at the central level (CGSAP) are not permanently employed public servants;
- Insufficient number of staff (federal and state), which may result in high work load; inadequate technical resources and inadequate competency due to absence of continuing education can affect the technical decision making process at the individual level.

Recommendations:

- Strengthen auditing procedures at all levels to detect risk factors (lack of motivation due to temporary employment, absence of continuing education, high work load, inadequate technical resources) which might affect technical independence;
- Assess the risk of potential conflict of interest of accredited private Veterinarians and develop procedures to manage that risk.

I-5. Stability of structures and sustainability of policies <i>The capability of the VS or AAHS structure and/or leadership to implement and sustain policies over time.</i>	Levels of advancement
	1. Substantial changes to the organisational structure and/or leadership of the public sector of the VS or AAHS frequently occur (e.g. annually) resulting in lack of sustainability of policies.
	2. Sustainability of policies is affected by changes in the political leadership and/or the structure and leadership of VS or AAHS.
	3. Sustainability of policies is not affected or is slightly affected by changes in the political leadership and/or the structure and leadership of VS or AAHS.
	4. Policies are sustained over time through national strategic plans and frameworks and are not affected by changes in the political leadership and/or the structure and leadership of VS or AAHS.
	5. Policies are sustained over time and the structure and leadership of the VS or AAHS are stable. Modifications are based on an evaluation process, with positive effects on the sustainability of policies.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): <http://www.mpa.gov.br/institucional> , L17, L28, L29, PP4, PP9

Findings:

Veterinary public health issues related to the fisheries and aquaculture products has been under the authority of MAPA since 1950 when the law 1.283 concerning the industrial and sanitary inspection of animal products was published. In 1952, the Regulation of Industrial and Sanitary Inspection of Animal Products - RIISPOA (Decree 30.691) was published, that includes veterinary public health issues related to the fisheries and aquaculture products.

In 2003, President Luiz Inácio Lula da Silva created the Special Secretariat of Aquaculture and Fisheries (SEAP), directly linked to the Presidency of the Republic. For the first time in Brazilian history, a national policy for the aquaculture sector was established at Ministerial level. Its mission was to formulate, coordinate and implement guidelines and policies for the development and fostering of sustainable Brazilian fishing and aquaculture production. SEAP was vested with advisory, promotional, supervisory and administrative functions, assisted the President in the drafting of policies and guidelines, promoted actions aimed at the construction of infrastructure for the development of fisheries, aquaculture and the trade in fish products and implemented programs for the rational development of aquaculture, in cooperation with the federal, state and municipal authorities. SEAP was also responsible for the upkeep of the General Fisheries Register (Registro Geral da Pesca, RGP), the granting of licenses, permits and authorisation for fisheries and aquaculture in collaboration with the Brazilian Institute for the Environment (Instituto Brasileiro do Meio Ambiente, IBAMA), which is attached to the Ministry of Environment and Natural Resources (Ministério do Meio Ambiente e dos Recursos Naturais Renováveis, MMA).

The MPA was established in 2009 by the Law No. 11,958 and took the role of the SEAP. The structure and organization of MPA is set out in Decree No 6.972. The Secretariat of Monitoring and Control of Fisheries and Aquaculture (DMC) was assigned to the implementation of the Aquaculture and Fishery Monitoring National Plan⁶. The Ministry has approved a development plan for national aquaculture for the period 2015-2020, the plan developed together with CONAPE and its working groups sets production targets by species and regions as well as a midterm investment plan for infrastructure and credit for farmers. AAH is also included in the budget.

In October 2015, a political decision was made to extinguish MPA. The CGSAP should keep its structure and be integrated in MAPA; however, at the time of visit there was no official

⁶ Available at: <http://www.mpa.gov.br/institucional/competencias/secretaria-de-monitoramento-e-controle-da-pesca-e-aquicultura-semoc>.

document (ordinance) defining the new structure (MEDIDA PROVISÓRIA Nº 696 DE 2 DE OUTUBRO DE 2015.⁷

Although this is the 3rd major reorganization in past 12 years, there was no evidence that these reorganizations have had a negative impact on the sustainability of policies.

Strengths:

- Major reorganizations in 2003 and 2009 brought improvement in institutional organizations of fisheries and aquaculture sectors.

Weaknesses:

- The perception of stakeholders met during the visits is that the extinction of MPA and bringing it under the authority of MAPA will not have a positive impact, because the livestock sector is the priority for the MAPA as it contributes to the GDP a lot more than the aquaculture and fisheries sector;
- There is no impact assessment of the decision on merging MPA and MAPA.

Recommendations

- Develop a long-term AAH strategic plan as an integrated part of National Strategy for Aquaculture Development that will ensure resources to the implementation of the National Aquatic Animal Health Program already set by legislation;
- An addendum to this document is required to review the MAP to MAPA re-integration. Issues that should be considered include, but should not be limited to:
 - New organisational structure
 - Stability and sustainability risks to core structures
 - Long-term strategic business planning for CGSAP
 - CGSAP decision making authority
 - Alignment with the work plan and resourcing of the National Aquatic Animal Health Program
 - Corporate governance structure
 - Integration of all AAHS to existing or new MAPA structures
 - Maintenance, expansion or loss of AAHS functionality following transition (potential redundancies and improvements)
 - New AAHS capacities
 - Any changes to the legislation required to maintain regulatory authority or to transfer authority to the CGSAP.

⁷ Available at; http://www.planalto.gov.br/ccivil_03/ Ato2015-2018/2015/Mpv/mpv696.htm.

<p>I-6. Coordination capability of the Veterinary Services or AAHS A. Internal coordination (chain of command)</p> <p><i>The capability of the VS or AAHS to coordinate its resources and activities (public and private sectors) with a clear chain of command, from the central level to the field level of the VS or AAHS in order to implement all national activities relevant for OIE Codes (i.e. surveillance, disease control and eradication, food safety and early detection and rapid response programmes).</i></p>	Levels of advancement
	1. There is no formal internal coordination and the chain of command is not clear.
	2. There are internal coordination mechanisms for some activities but the chain of command is not clear.
	3. There are internal coordination mechanisms and a clear and effective chain of command for some activities.
	4. There are internal coordination mechanisms and a clear and effective chain of command at the national level for most activities.
5. There are internal coordination mechanisms and a clear and effective chain of command for all activities and these are periodically reviewed/audited and updated.	

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L22, PP7, PP11, PP17, E21, E30, E31, E32, E41, and E42

Findings:

As already described under the CC I-1, the MPA is the CA for AAHS. All the relevant AAH activities in Brazil are developed or coordinated by the CGSAP, located at the Secretariat of Monitoring and Control of Fisheries and Aquaculture (SEMOC).

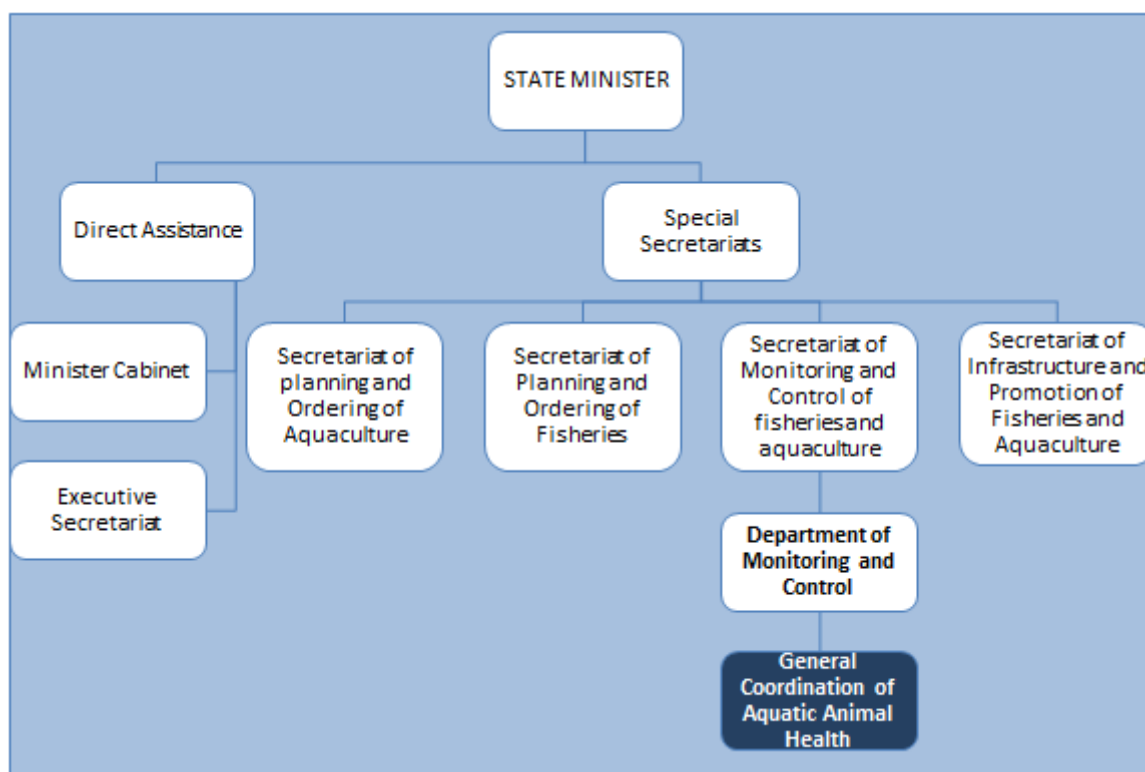


Figure 19: MPA Organogram

However, the Veterinary Public Health Services are performed by MAPA, specifically by the Fish and Products Inspection Division (DIPES/CGI/DIPOA/MAPA), responsible for the supervision of food business establishments dealing with aquaculture and fisheries products. MPA and MAPA signed a technical cooperation agreement in 2010 (Acordo de Cooperacao Tecnica No 06/2010) by which they defined responsibilities and a formal way of communication.

MPA has representations in each one of the country's federative units. Each state has a representation in the capital (a central office called Federal Superintendence of Fisheries and Aquaculture, SFPA).

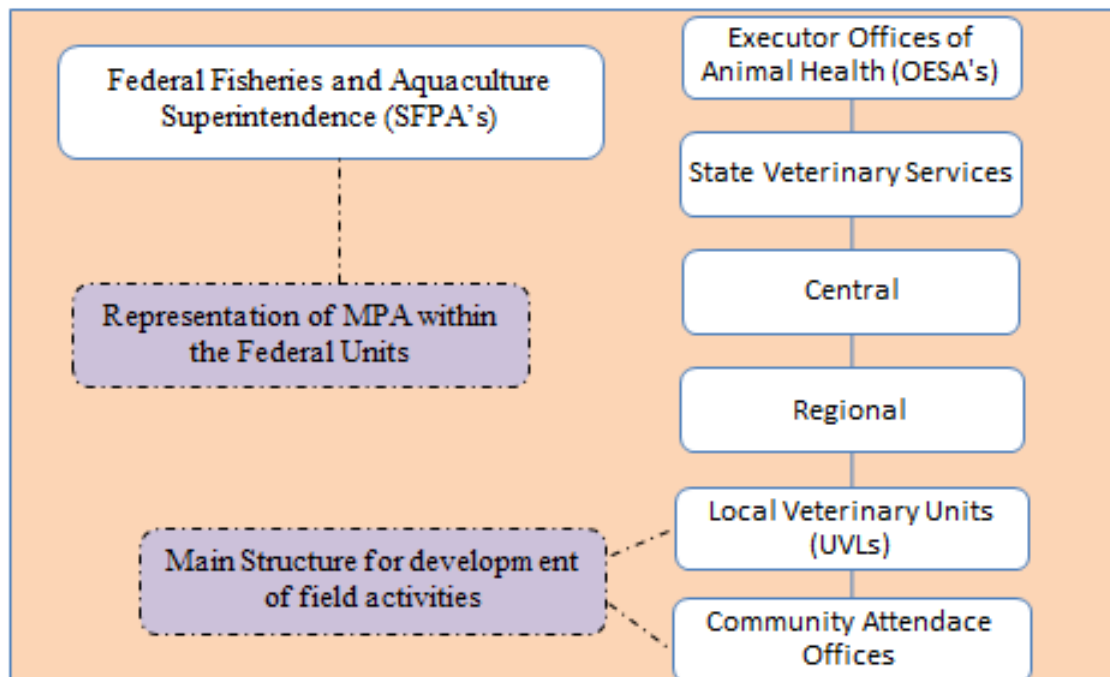


Figure 20: Structure for field activities in AAH

AAH activities should be implemented in each one of Brazil's federative unit, with the assistance of SVS's, under the responsibility of the state governments themselves.

Each Brazilian state is administratively divided into municipalities, which are in turn used as the basic units of the system. The SVS is also organized in other levels: central coordination unit; regional coordination units responsible for managing several municipalities; Local Veterinary Units (LVU), the basic unit of the system, where field Veterinarians are responsible for the implementation of field activities and for submitting information to the coordination units. In some states, since making one LVU with an official veterinarian available in each municipality is not possible, the Community Assistance Offices (CAO) are established, where agriculture and livestock technicians provide assistance to the population. LVU Veterinarians in neighbouring municipalities become responsible for managing and supporting these offices, and they are summoned in the event of a sanitary authority.

Although SVS's are not directly subordinated to the MPA, but to the state government, it is considered to be internal coordination because SVS's are responsible for the implementation of AAH programs financed by the MPA (training, surveillance, database development/upgrade, movement control, inspections, public awareness/education programs). In order to get the programs financed, each state has to apply for agreement with MPA. Until October 2015, 13 SVS signed the agreements with MPA and five more agreements are in progress; however, not all of the 13 signed agreements are executed, due to different reasons, for example, insufficient administrative capacities.

The implementation of AAH programs is obligatory by law. Where no agreement between federal and state level was signed the implementation depends largely on the economic importance of the sector. For instance, the states of Goiás, Bahia, Rondônia, Mato Grosso have specific programs for AAH and they have not received any financial support by the Federal government for this specific activity.

SVS is also responsible for the official controls of food business establishments approved for placing fish and aquaculture and fisheries products on the state market.

Establishments registered for placing fish and aquaculture and fisheries products on the local market are under the responsibility of municipality Veterinarians. MPA and MAPA do not coordinate activities with municipality Veterinarians.

Strengths:

- MPA has formal agreements for the coordination and communication with MAPA with several federal states;
- MPA has agreements with SVS for the financing implementation of AAH programs;
- All states have the obligation according to national law to execute AH programs including AAH.

Weaknesses:

- MPA does not have formal agreements signed, operational and executed with all of the states;
- The level of implementation of the AAH programs depends largely on the economic importance of the sector;
- There is no coordination between MPA, MAPA and municipality Veterinarians.

Recommendations

- Assess the current difficulties in execution of agreements and communicate with the states on outcomes and possible solutions;
- Define the points of interest in AAH and VPH with municipality Veterinarians and develop coordination mechanisms.

B. External coordination	Levels of advancement
<p><i>The capability of the VS or AAHS to coordinate its resources and activities (public and private sectors) at all levels with other relevant authorities as appropriate, in order to implement all national activities relevant for OIE Codes (i.e. surveillance, disease control and eradication, food safety and early detection and rapid response programmes).</i></p> <p><i>Relevant authorities include other ministries and Competent Authorities, national agencies and decentralised institutions.</i></p>	1. There is no external coordination.
	2. There are informal external coordination mechanisms for some activities, but the procedures are not clear and/or external coordination occurs irregularly.
	3. There are formal external coordination mechanisms with clearly described procedures or agreements for some activities and/or sectors.
	4. There are formal external coordination mechanisms with clearly described procedures or agreements at the national level for most activities, and these are uniformly implemented throughout the country.
	5. There are national external coordination mechanisms for all activities and these are periodically reviewed and updated.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP2, E61, E62, E63

Findings:

The National Council for Aquaculture and Fisheries (Conselho Nacional de Aquicultura e Pesca, CONAPE) plays important role in development of this sector. There are 27 different governmental bodies and 27 non-governmental organizations participating in this council, which have an advisory role on proposing public policies relating to the development of the aquaculture and fisheries sector.

Another focal institution for the management of fisheries is the Brazilian Institute for the Environment (IBAMA). Its responsibilities mainly concern environmental issues, such as natural resources conservation (including aquatic resources), environmental licences and water quality control. MPA has a formal agreement on cooperation with IBAMA and the governmental body responsible for the management of water resources and on institutional cooperation with regards to aquaculture licensing. This agreement was concluded in 2004 and at that time the CA for aquaculture and fisheries was the Special Secretariat of Aquaculture and Fisheries (SEAP). Exchange of information regarding environmental licencing is not used to facilitate farm registry.

MAPA and IBAMA (as part of the Ministry of Environment and Natural Resources) have cooperation on import of fish and fisheries and aquaculture products, permits issuing, and border inspection controls.

MAPA collaborates with Ministry of Health (MoH) on zoonosis control and food-borne outbreaks; however, only one case was reported from MoH in five years indicating possible underreporting. There is no coordination between MPA and MoH. MPA does not receive any information on food-borne outbreaks in human population related to fish, fisheries and aquaculture products. In the case of the national program for bivalve mollusc control (PNCMB), such information would be very relevant.

MPA participate in the Inter-ministerial Committee for Preparation of the National Prevention and Control of Antimicrobial Resistance Plan.

MPA does not have contingency plans yet and no coordination procedures in case of emergencies.

Strengths:

- MPA and MAPA have some coordination with other governmental bodies through bilateral agreements or CONAPE as an advisory body that gathers different ministries and agencies and civil society.

Weaknesses:

- Exchange of information and coordination with MoH on case of food-borne outbreaks is deficient.

Recommendations:

- Strengthen the coordination with MoH at the central level and define procedures and protocols for coordination at the field level, which has to also include state and municipality authorities.

I-7. Physical resources	Levels of advancement
<i>The access of the VS or AAHS to relevant physical resources including buildings, transport, telecommunications, cold chain, and other relevant equipment (e.g. computers).</i>	1. The VS or AAHS have no or unsuitable physical resources at almost all levels and maintenance of existing infrastructure is poor or non-existent.
	2. The VS or AAHS have suitable physical resources at national (central) level and at some regional levels, and maintenance and replacement of obsolete items occurs only occasionally.
	3. The VS or AAHS have suitable physical resources at national, regional and some local levels and maintenance and replacement of obsolete items occurs only occasionally.
	4. The VS or AAHS have suitable physical resources at all levels and these are regularly maintained.
	5. The VS or AAHS have suitable physical resources at all levels (national, sub-national and local levels) and these are regularly maintained and updated as more advanced and sophisticated items become available.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP7, PP9, PP11, PP14, PP15, PP16, PP17, E21, E41

Findings:

Considering that apart from CGSAP at the central level, which has adequate physical resources, and RENAQUA laboratory network, which is elaborated in CC II-1, AAHS uses the VS network. Therefore, findings and remarks made in PVS Evaluation Follow-up Report 2014 on physical resources are applicable also here. It was not possible to obtain information on which resources are used exclusively or partially on AAH activities.

In general, the physical resources are adequate for the scope of activities performed. Here is the overview of physical resources for the whole VS network listed in 2014 in the Report.

Table 18: Resources available per state (Source PVS Follow up resource 2014)

PUBLIC VETERINARY SERVICES	Federal level									State level										
	Car 4x2	Car 4x4	Boats	Motos	Trailers	Computers	Telephone	FAX	GPS	Car 4x2	Car 4x4	Boats	Motos	Trailers	Computers	Telephone	FAX	GPS	Internet	Kits FMD
Acre	2	1	0	0	0	16	6	1	3	5	23	12	23	3	95	26	21	27	20	15
Alagoas	3	4	0	0	0	11	5	2	1	57	10	0	39	3	96	49	23	39	24	18
Amapá	2	1	1	0	0	8	3	2	7	14	10	3	2	2	25	6	1	3	1	0
Amazonas	7	7	2	0	0	43	13	9	3	3	23	44	71	1	94	64	67	46	68	15
Bahia	30	9	0	0	0	53	22	13	4	220	48	2	109	13	987	507	120	197	374	73
Ceará	13	3	0	0	0	43	10	4	0	82	39	0	20	6	282	21	29	198	40	21
Distrito Federal	6	0	0	0	0	14	1	0	2	23	0	0	0	0	59	13	3	11	14	2
Espírito Santo	28	3	0	0	0	44	18	7	7	82	2	0	4	1	239	166	62	186	81	34
Goiás	29	5	0	0	0	61	35	6	3	371	85	0	0	11	875	432	269	218	286	150
Maranhão	7	11	0	0	0	32	9	2	5	179	96	10	207	12	283	159	136	121	95	111
Mato Grosso	4	21	0	0	0	50	19	4	6	161	62	3	4	3	578	249	116	154	155	36
Mato Grosso do Sul	25	10	0	0	0	64	36	7	13	306	247	4	0	24	550	286	102	138	101	57
Minas Gerais	35	10	0	0	0	159	32	28	0	622	30	0	0	7	571	742	522	743	976	218
Pará	2	5	0	0	0	46	8	6	8	91	109	31	159	18	428	161	144	167	93	89
Paraíba	14	5	0	0	0	44	7	2	10	57	19	0	0	1	199	97	45	76	134	25
Paraná	44	31	0	0	0	145	55	28	10	300	23	0	0	6	695	460	404	169	401	135
Pernambuco	9	1	0	0	0	40	16	5	8	183	32	0	37	10	450	169	98	166	127	49
Piauí	10	5	0	0	0	26	6	7	5	52	28	0	125	2	246	99	137	182	52	37
Rio de Janeiro	47	4	0	0	0	125	26	14	16	74	4	0	0	4	147	82	57	86	61	29
Rio Grande do Norte	4	2	0	0	0	24	9	1	4	32	15	0	0	5	226	172	39	24	133	13
Rio Grande do Sul	96	13	0	0	1	114	75	19	15	372	24	6	0	11	1022	509	197	284	447	230
Rondônia	3	22	0	0	0	38	17	8	3	68	101	33	164	17	711	268	112	143	100	63
Roraima	6	6	0	0	1	15	6	5	2	3	12	1	13	2	31	25	13	14	2	11
Santa Catarina	17	3	0	0	0	103	41	12	6	412	25	0	0	6	835	416	108	263	371	147
São Paulo	4	1	0	0	0	9	6	1	2	581	36	0	0	24	920	504	239	454	328	44
Sergipe	197	0	0	0	0	46	20	11	3	39	6	1	32	1	87	87	44	43	75	26
Tocantins	3	3	0	0	0	10	8	1	2	121	104	9	19	5	393	222	105	56	131	52
TOTAL	647	186	3	0	2	1383	509	205	148	4510	1213	159	1028	198	11134	5991	3213	4208	4690	1700

During the field visits, the Team noted that some official Veterinarians interviewed indicated inadequacy of cars (no air condition at extreme high temperatures), no laptops or tablets for fieldwork and Internet connection is inadequate. Some of the SVS's do not have boats for sampling, but this deficiency is overcome by hiring a company for sampling. The federal government through the agreement with MPA also finance that arrangement.

Strengths:

- An AAH in general, has physical resources for the scope of activities performed.

Weaknesses:

- AAHS does not have an assessment of the physical resources currently used in AAHS and physical resources needed for the expanded operations in AAH once the aquaculture register is completed.

Recommendations:

- Include resource planning information on the physical resources used and needed in agreements with the SVS and possible impact on performance.

I-8. Operational funding	Levels of advancement
<i>The ability of the VS or AAHS to access financial resources adequate for their continued operations, independent of political pressure.</i>	1. Funding for the VS or AAHS is neither stable nor clearly defined but depends on resources allocated irregularly.
	2. Funding for the VS or AAHS is clearly defined and regular, but is inadequate for their required base operations (i.e. disease surveillance, early detection and rapid response and Veterinary public health).
	3. Funding for the VS or AAHS is clearly defined and regular, and is adequate for their base operations, but there is no provision for new or expanded operations.
	4. Funding for new or expanded operations is on a case-by-case basis, not always based on risk analysis and/or cost benefit analysis.
	5. Funding for all aspects of VS or AAHS activities is adequate; all funding is provided under full transparency and allows for full technical independence, based on risk analysis and/or cost benefit analysis.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L22, PP9, PP11, PP14, PP16, PP17, E41, E42

Findings:

As the responsibilities are divided between different CA's so are the financial sources.

MPA is financing implementation of the AAH programs, which may include training, surveillance, database development/upgrade, movement control, inspections, and public awareness/education programs.

MPA ensured a five year budget for these activities for the period 2011-2015 with the total amount of R\$67,341,210.57 (USD 17,097,751.54). The 14 million R\$ per year budget is specifically directed to AAH and, covers laboratory funding, AquaEpi and state agreements. The specific AAH budget does not include salaries, infrastructure maintenance etc. States are co-financing these programs in different shares, which might be between 5-20%, depending on planned activities and capacities. These arrangements are elaborated in detail in working plans for each state that has signed the agreement.

Here is an example of the financial arrangement from one of the working plans.

Table 19: MPA – State financial agreement

TOTAL VALUE:	R\$ 2,386,233.24	
COUNTERPART VALUE:	R\$ 126,117.02	
TRANSFERS VALUES:	Year	Value
	2013	R\$ 1,717,344.97
	2014	R\$ 542,771.25
START:	18/11/2013	
END OF TERM:	31/12/2016	

Salaries of the staff, as well as maintenance of the technical resources are completely on the state budget and not included in these agreements.

The execution of the five year planned budget is below expectations because not all states have signed agreements and not all that signed the agreement have been paid due to insufficient state administrative capacity. By October 2015 the total transferred was: R\$ 33,907,985.00 (USD 8,609,145.84), representing less than 50% executed of the planned budget. The current level of policy implementation is not the result of insufficient financial resources, but complicated administrative procedures and insufficient human resources at state level.

MAPA is financing all the VPH activities including salaries, technical resources, sampling and testing as a part of border inspection, official controls and the residue monitoring program.

Strengths:

- MPA has ensured a five year budget for operational activities;
- A comprehensive working plan allows efficient audit of AAH programs.

Weaknesses:

- Execution of the five year budget does not exceed 50% due to non-concluded agreements and concluded, but not executed agreements.

Recommendations:

- Review the reasons that have prevented AAHS from reaching the objectives set within the five year budget.

I-9. Emergency funding	Levels of advancement
<i>The capability of the VS or AAHS to access extraordinary financial resources in order to respond to emergency situations or emerging issues; measured by the ease of which contingency and compensatory funding (i.e. arrangements for compensation of producers in emergency situations) can be made available when required.</i>	1. No funding arrangements exist and there is no provision for emergency financial resources.
	2. Funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues).
	3. Funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process.
	4. Funding arrangements with adequate resources have been established, but in an emergency situation, their operation must be agreed through a non-political process on a case-by-case basis.
	5. Funding arrangements with adequate resources have been established and their rules of operation documented and agreed with interested parties.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L24, L25, L26, PP14, E28, E37, E41, E42

Findings:

It is responsibility of all the states of the federation to establish emergency funds and to have them operational in the event of an outbreak of a disease of significant economic importance. These funds are made up of resources allocated by the federal and state governments and the private sector involved in agribusiness, which include fees collected for the provision of certain animal health services (e.g. issuance of movement permit, GTA). Management of emergency funds consists of members from the public (Federal Superintendence of Agriculture as a representative of the Federal Government; representatives of SVS) and private sector (producer associations of the main species: cattle, pigs, poultry and the Organization of Agricultural Cooperatives). Usually these funds have a steering committee coordinated by the Secretary of State Authority for Agriculture.

The establishment of these funds was initiated by Normative Instruction No. 44 of October 2, 2007, published in the Official Gazette of 03/10/2007, approving the general guidelines to support to implementation of the National program for the Eradication and Prevention of Foot and Mouth Disease (PNEFA). The Program strategies involve the implementation and maintenance of financial, public or private funds to support the emergency Veterinary system.

Aquaculture producers are not yet participating in these funds; however, in one of the states (SC) visited, representatives of the SVS (CIDASC) informed the Team that aquaculture producers would still be compensated from the public resources of the fund. Here is the example of emergency funding in that state (SC).

Table 20: Example emergency funding arrangements in Santa Catarina state

Emergency funds	
Private fund	R\$ 15,000,000.00
Public fund (FUNDESA)	R\$ 800,000.00
TOTAL	R\$ 15,800,000.00

There are certain differences between the states in the method of collecting fees and also in the use of these funds. Private funds are established in the states of Mato Grosso, Goiás, Espírito Santo, Paraná, Rio Grande do Sul and Santa Catarina. These funds are voluntary and cover compensation only for the fund members (cattle, pigs and poultry producers).

Strengths:

- There is a system of emergency funding established and includes federal, state and private allocation of funds;
- Some states include aquaculture producers in compensation funding.

Weaknesses:

- Aquaculture producers do not participate in emergency funding infrastructure;
- Most of the funds established for emergency funding consider only cattle, pigs and poultry producers eligible for compensation.

Recommendations:

- Work with industry stakeholders to ensure a well-defined and documented system for provision of compensation for aquaculture producers in the event of regulated disease investigation and control actions.

I-10. Capital investment	Levels of advancement
<i>The capability of the VS or AAHS to access funding for basic and additional investments (material and non-material) that lead to a sustained improvement in the VS operational infrastructure.</i>	1. There is no capability to establish, maintain or improve the operational infrastructure of the VS or AAHS.
	2. The VS or AAHS occasionally develops proposals and secures funding for the establishment, maintenance or improvement of operational infrastructure but this is normally through extraordinary allocations.
	3. The VS or AAHS regularly secures funding for maintenance and improvements of operational infrastructure, through allocations from the national budget or from other sources, but there are constraints on the use of these allocations.
	4. The VS or AAHS routinely secures adequate funding for the necessary maintenance and improvement in operational infrastructure.
	5. The VS or AAHS systematically secures adequate funding for the necessary improvements in operational infrastructure, including with participation from interested parties as required.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP10, PP18

Findings:

PVS Follow-up Evaluation in 2014 has shown that Brazil VS have the capability to secure capital investment with participation of interested parties. Considering that MPA uses the VS network for the implementation of AAH policies for the past five years, the focus was on development of diagnostic capacities. For that purpose MPA has secured capital investment of USD8.2 million in development of RENAQUA (Brazilian Official Laboratories Network for Aquatic Animal Diseases):

- AQUACEN (Central Official Laboratory) - new building and equipment USD7.2 million (R\$ 26,800,000) in the period 2011-2015
- LAQUA – ITAJAI laboratory for marine biotoxins established in cooperation MPA/IFSC with financial support by MPA (2012-2017) USD\$1,000,000.00 (R\$ 3,704,500)

Strengths:

- An AAH has ensured significant capital investment in development of diagnostic capacities.

Weaknesses:

- Private aquaculture sector does not participate in capital investments of the AAHS.

Recommendations:

- Define a long-term strategic plan for the capital investments in AAHS in accordance with the National Plan for Aquaculture Development.

I-11. Management of resources and operations <i>The capability of the VS or AAHS to document and manage their resources and operations in order to analyse, plan and improve both efficiency and effectiveness.</i>	Levels of advancement
	1. The VS or AAHS do not have adequate records or documented procedures to allow appropriate management of resources and operations. 2. The VS or AAHS have adequate records and/or documented procedures but do not use these for management, analysis, control or planning. 3. The VS or AAHS have adequate records, documentation and management systems and use these to a limited extent for the control of efficiency and effectiveness. 4. The VS or AAHS regularly analyse records and documented procedures to improve efficiency and effectiveness. 5. The VS or AAHS have fully effective management systems, which are regularly audited and permit a proactive continuous improvement of efficiency and effectiveness.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L22, PP7, PP8, PP17, E41, E42

Findings:

Considering that MPA does not have field structure, but uses the SVS structure for the implementation of AAH programs, they are managing operations through the detailed Working Plans with each of the SVS that signed the agreement with MPA. Working plans are very comprehensive and provide a solid basis for effective management of operations.

To manage their operations, most states have developed their own databases, which do not communicate. This administrative structure doesn't support effective movement control and traceability of live animals and products of animal origin between states and compromises the implementation of animal health preventive, surveillance and emergency measures.

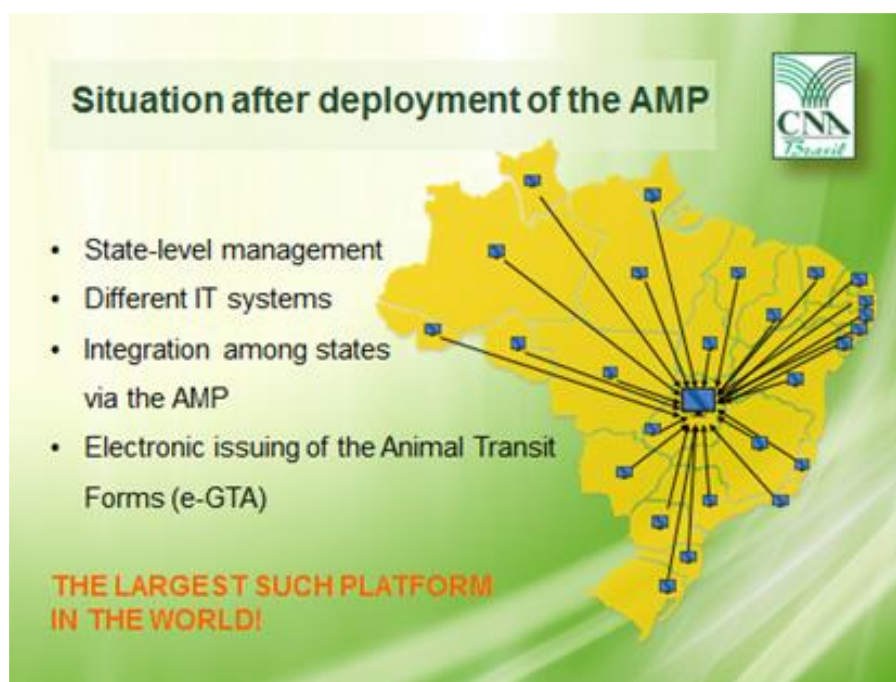


Figure 21: Agriculture management platform

In order to find a solution, MAPA and CNA have initiated a joint project on establishing a centralized computerized systems-integration platform called Agriculture Management Platform (AMP/PGA), to standardize working procedures and to provide access to information entered and collected in different states.

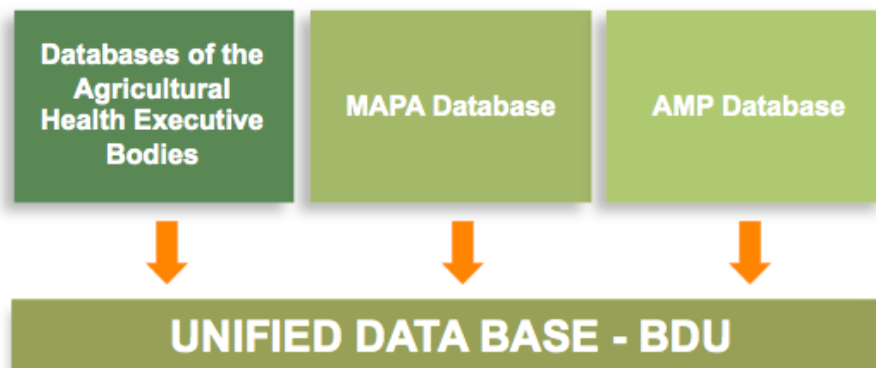


Figure 22: Integration of databases

State VS that have not developed computerized systems can use this platform directly.

MPA has developed definition of rules and follow up of the electronic control of animal transit in the AMP.

Strengths:

- MPA has comprehensive working plans for the implementation of each agreement concluded with the SVS;
- Integration of computerized systems developed by the states for managing GTA as a tool for movement controls and traceability is in progress.

Weaknesses:

- Most of the SVS do not yet use an integrated system for the aquaculture programs/

Recommendations:

- Complete integration of computerized systems developed by the SVS to AMP;
- Regular review and audit of the execution of working plans.

III.2 Fundamental component II: Technical authority and capability

This component of the evaluation concerns the authority and capability of the VS or AAHS to develop and apply sanitary measures and science-based procedures supporting those measures. It comprises seventeen critical competencies

Critical competencies:

Section II-1	Laboratory diagnosis A. Access to laboratory diagnosis B. Suitability of national laboratory infrastructures
Section II-2	Laboratory quality assurance
Section II-3	Risk analysis
Section II-4	Quarantine and border security
Section II-5	Epidemiological surveillance and early detection A. Passive Epidemiological surveillance B. Active Epidemiological surveillance
Section II-6	Emergency response
Section II-7	Disease prevention, control and eradication
Section II-8	Food safety: A. Regulation, authorisation and inspection of establishments B. Inspection of collection, processing and distribution of products of animal origin
Section II-9	Veterinary medicines and biologicals
Section II-10	Residue testing
Section II-11	Aquatic animal feed safety
Section II-12	Traceability A. Aquatic animal movement control B. Traceability of products of aquatic animals origin
Section II-13	Welfare of farmed fish

Aquatic Code Reference(s):

Chapter 2.2. on Import risk analysis.
Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
Chapters 6.2. on Introduction to the recommendations for controlling antimicrobial resistance.
Chapter 6.3. on Principles for responsible and prudent use of antimicrobial agents in aquatic animals.
Chapter 6.4. on Monitoring of the quantities and usage patterns of antimicrobial agents used in aquatic animals.
Chapter 6.5. on Development and harmonisation of national antimicrobial resistance surveillance and monitoring programmes for aquatic animals.
Chapter 7.1. on Introduction to the recommendations for the welfare of farmed fish.
Chapter 7.2. on Welfare of farmed fish during transport.
Chapter 7.3. on Welfare aspects of stunning and killing of farmed fish for human consumption.
Chapter 7.4. on Killing of farmed fish for disease control purposes.

Terrestrial Code Reference(s):

Point 1 of Article 3.2.4. on Evaluation criteria for quality systems.
Point 3 of Article 3.2.6. on Evaluation criteria for material resources: Technical.
Points 1 and 2 of Article 3.2.7. on Legislation and functional capabilities: Animal health, animal welfare and Veterinary public health / Export/import inspection.
Points 1-3 of Article 3.2.8. on Animal health controls: Animal health status / Animal health control / National animal disease reporting systems.
Points 1-5 of Article 3.2.9. on Veterinary public health controls: Food hygiene / Zoonoses / Chemical residue testing programmes / Veterinary medicines/ Integration between animal health controls and Veterinary public health.
Sub-point f) of Point 4 of Article 3.2.10. on Veterinary Services administration: Formal linkages with sources of independent scientific expertise.
Points 2 and 5-7 of Article 3.2.14. on National information on human resources / Laboratory services / Veterinary legislation, regulations and functional capabilities / Animal health and Veterinary public health controls.

Codex Alimentarius Commission standards:

General Principles of Food Hygiene (CAC/RCP 1-1969).
Code of practice for fish and fishery products (CAC/RCP 52-2003).

II-1. Laboratory diagnosis	Levels of advancement
<p>A. Access to laboratory diagnosis</p> <p><i>The authority and capability of the VS or AAHS to have access to laboratory diagnosis in order to identify and record pathogenic agents, including those relevant for public health, that can adversely affect aquatic animals and aquatic animal products.</i></p>	1. Disease diagnosis is almost always conducted by clinical means only, with no access to and use of a laboratory to obtain a correct diagnosis.
	2. For major diseases of national economic importance, the VS or AAHS have access to and use a laboratory to obtain a correct diagnosis.
	3. For other diseases present in the country, the VS or AAHS have access to and use a laboratory to obtain a correct diagnosis.
	4. For diseases of economic importance not present in the country, but known to exist in the region and/ or that could enter the country, the VS or AAHS have access to and use a laboratory to obtain a correct diagnosis.
	5. In the case of new and emerging diseases in the region or world, the VS or AAHS have access to and use a network of national or international reference laboratories (e.g. an OIE Reference Laboratory) to obtain a correct diagnosis.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L1, L9, PP10, PP18, E22, E25, E26

Findings:

Note: During the mission, none of the laboratories responsible for food safety aspects were visited. Aspects related to their capacity suitability and quality assurance were described in PVS Brazil Follow-up Report 2014.

The VS have access to four referral aquatic diagnostic laboratories organized in a network (RENAQUA) that are robust for their molecular diagnostic capabilities and are well funded, well equipped, and utilize appropriate expertise. However, only two of these laboratories appear to currently be fully operational (AQUACEN and LAQUA) and private and state diagnostic laboratories are largely absent from supplying cases to these referral centres. Thus, there is no laboratory network or coordination able to assess regional diagnostic capacity. Furthermore, investigation into the pathogenesis of an emerging disease requiring access to a wider spectrum of diagnostic techniques, such as histopathology, virus cell culture, bacteriology, and so on, may be more difficult to access, particularly outside of the central laboratory.

Table 21: Official Laboratories (RENAQUA)

DESIGNATION	SCOPE	LOCATION
AQUACEN	Aquatic animal diseases	UFMG – Belo Horizonte/MG
LAQUA	Crustaceans disease	UEMA – São Luiz/MA
LAQUA	Aquatic animal diseases	CIDASC – Joinville/SC
LAQUA	Biotoxins	IFSC – Itajaí/SC

The central diagnostic laboratory AQUACEN is familiar with diagnostic methods regarding the aquatic notifiable disease lists and has active collaboration with OIE Reference Laboratories, primarily the Norwegian Veterinary Institute (twinning project 2014-2017). Over the past five years, AQUACEN has upgraded their methods to include 27 OIE-listed pathogens, plus 19 other diseases key to the country, and tests for three important marine biotoxins. The AQUACEN facility has the capacity to process up to 4000 tests per month, although this demand has yet to be reached. In 2015, AQUACEN tested more than 2100 samples, including 1171 fish, 549 crustaceans, and 436 mollusc samples. The majority of these tests were PCR based (77%), while a smaller number were for bacteriology (17%), parasitology (3%), and virology (1%). AQUACEN works as a reference for the network and has responsibilities established by legislation in harmonizing methods including the execution

of ring tests and training of laboratory staff. AQUACEN is currently developing a plan to implement a laboratory information management system (LIMS) for the network.

Mollusc biotoxin and harmful algal toxin surveillance laboratory (Laqua) in Itajai was established in 2012 as part of an educational institute. Funding for this capacity is secure until 2017 when its five year agreement expires. This official diagnostic laboratory provides important results for area closures of mollusc harvests. It also develops new analytic methods and provides professional training. Two other laboratories are planned; one for mollusc and the other for crustacean diseases. The mollusc diagnostic facility is ready and laboratory technical expertise is being trained for a scheduled start in February 2016. A crustacean disease diagnostic laboratory is still being equipped and facilities are not yet ready. A Laboratory Information Management System is being developed to integrate all of the federal laboratories and all are planned to be ISO: 17025 compliant.

State and local aquatic diagnostic laboratories did not appear to be available in most states. For shrimp diseases, for example, farm-based testing would occur for some larger farms and university-based testing was sometimes available, but government laboratories were largely absent. The shrimp farmers association has started this year to operate a small laboratory providing AAH services for its members; the diagnostic capacity of this laboratory is not clear. A manual for collection of official samples for disease diagnosis was developed and training provided to some of the state AAH services.

Strengths:

- Robust central diagnostic laboratory capacity with OIE-listed disease diagnostic capabilities;
- Well-funded, well-equipped, expertly staffed federal diagnostic capacity;
- Central referral laboratories available for finfish and marine biotoxins, with mollusc and crustacean disease diagnostic laboratories planned for near future.

Weaknesses:

- State and private diagnostic laboratory capacity for aquatic disease investigations is mostly absent;
- Pathogenesis studies or live fish holding for investigations of new or emerging aquatic diseases lack facilities or capacity.

Recommendations:

- Strengthen state and private diagnostic capacity to facilitate rapid and local investigations;
- Expand diagnostic capabilities to include wider scope of expertise and ability to investigate new and emerging pathogens with tank-based research facilities;
- Develop a sampling and sample submission logistics network including all training and procedures and the development at state level of screening support laboratories. Develop national standard diagnostic procedure manuals for all important exotic and endemic aquatic animal diseases;
- Identify and invest in research directed toward improving diagnostic capacity.

II-1. Laboratory diagnosis	Levels of advancement
B. Suitability of national laboratory infrastructures <i>The sustainability, effectiveness and efficiency of the national (public and private) laboratory infrastructures to service the needs of the VS or AAHS.</i>	1. The national laboratory infrastructure does not meet the need of the VS or AAHS.
	2. The national laboratory infrastructure meets partially the needs of the VS or AAHS, but is not entirely sustainable, as organisational deficiencies with regard to the effective and efficient management of resources and infrastructure (including maintenance) are apparent.
	3. The national laboratory infrastructure generally meets the needs of the VS or AAHS. Resources and organisation appear to be managed effectively and efficiently, but their regular funding is inadequate to support a sustainable and regularly maintained infrastructure.
	4. The national laboratory infrastructure generally meets the needs of the VS or AAHS and is subject to timely maintenance programmes but needs new investments in certain aspects (e.g. accessibility to laboratories, number or type of analyses).
	5. The national laboratory infrastructure meets the needs of the VS or AAHS, and is sustainable and regularly audited.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L1, L9, PP10, PP18, E22, E25, E26

Findings:

Note: During the mission, none of the laboratories responsible for food safety aspects were visited. Aspects related to their capacity suitability and quality assurance were described in the PVS Brazil Follow up Report 2014.

National infrastructure of collaborating laboratories is heavily focused in a small number of state-of-the-art, federally-funded laboratories. Recent (past 3-5 years) past has seen large investment resulting in two of four laboratories becoming operational and another two being established. Operational capacity currently includes the central diagnostic laboratory, AQUACEN, and a marine biotoxin laboratory, LAQUA. However, supporting laboratory systems are difficult to assess as there appears to be very few aquatic laboratories or laboratories capable of performing standard aquatic animal disease diagnostic procedures outside of this central system. Local or state services that would provide initial investigation capabilities are sparse at best, and completely absent in many cases.

AQUACEN is located in the campus of the Federal University of Minas Gerais and develops diagnostic and teaching/research activities. The laboratory space is very limited and a new building is expected to be completed in two years with a total area of 650 sqm and includes P3 facilities. The budget for the new building has been approved by the Brazilian government.

Strengths:

- State of the art central diagnostic capacity using molecular genetic methods is well funded and well equipped;
- Expertise in these laboratories is excellent and expanding with multiple collaborations.

Weaknesses:

- Shallow support for regional or state laboratory services inhibits rapid and thorough diagnostic investigations by aquatic VS;
- State and municipal capacity for aquatic animal disease testing is under-developed or completely lacking in many areas.

Recommendations:

- Expand interactions between federal and state, and state and municipal/private, Veterinary services to facilitate aquatic disease detection and investigation;
- Follow through on establishing state-level capacity to investigate aquatic animal diseases that would access the national infrastructure for confirmatory testing and federal responses;
- Develop disease diagnosis capacity applicable to warm freshwater finfish species.

II-2. Laboratory quality assurance	Levels of advancement
<i>The quality of laboratories as measured by the use of formal QA systems, including, but not limited to, participation in relevant proficiency testing programmes.</i>	1. No laboratories used by the public sector VS or AAHS are using formal QA systems.
	2. Some laboratories used by the public sector VS or AAHS are using formal QA systems.
	3. All laboratories used by the public sector VS or AAHS are using formal QA systems.
	4. All the laboratories used by the public sector VS or AAHS and most or all private laboratories are using formal QA systems.
	5. All the laboratories used by the public sector VS or AAHS and most or all private laboratories are using formal QA programmes that meet OIE, ISO 17025, or equivalent QA standard guidelines.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, PP10, E23, E25, E27

Findings:

Note: During the mission, none of the laboratories responsible for food safety aspects were visited. Aspects related to their capacity suitability and quality assurance were described in PVS Brazil Follow-up Report 2014.

There was no evidence of any formal QA systems outside of the central laboratory (AQUACEN). There are on-going efforts towards an audit system with good quality training of technical support. The laboratory director indicated a three year time frame for accreditation for five disease laboratory diagnostic methods. Although the twinning program with Norwegian Veterinary Institute is useful progress toward furthering general quality improvements, the actual testing for Infectious Salmon Anaemia is not a direct benefit to Brazil. Proficiency testing is being done for a small number of pathogens and further work is planned to examine diagnostic sensitivity and specificity using the epidemiology expertise at local universities (and collaborations with other academics). A manual for sample collection and dispatch to the laboratory is available and work has been initiated to provide training manuals for Veterinarians submitting samples during investigations. However, state agencies are responsible for establishing training courses and very few states have documented evidence of activity in this area.

Strengths:

- Twinning program with Norwegian Veterinary Institute contributes to proficiency developments and establishment of QA systems.

Weaknesses:

- There are few formal QA systems documented;
- Procedures for establishing additional laboratory accreditation or proficiency verification are not documented or available.

Recommendations:

- Establish a (or use an existing) comprehensive and auditable accreditation system for verifying the quality and operation of diagnostic procedures in other laboratories outside of central system;
- Establish documented proficiency testing system for state and private laboratories as they expand;
- Document a full validation process for diagnostic tests utilized in RENAQUA;
- Develop official national standard diagnostic procedures for use by all accredited public and private sector laboratories.

II-3. Risk analysis	Levels of advancement
<i>The authority and capability of the VS or AAHS to base its risk management measures on risk assessment.</i>	1. Risk management measures are not usually supported by risk assessment.
	2. The VS or AAHS compile and maintain data but do not have the capability to carry out risk analysis. Some risk management measures are based on risk assessment.
	3. The VS or AAHS compile and maintain data and have the capability to carry out risk analysis. The majority of risk management measures are based on risk assessment.
	4. The VS or AAHS conduct risk analysis in compliance with relevant OIE standards, and base their risk management measures on the outcomes of risk assessment.
	5. The VS or AAHS are consistent in basing sanitary measures on risk assessment, and in communicating their procedures and outcomes internationally, meeting all their OIE obligations (including WTO SPS Agreement obligations where applicable).

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L4, L5, L27, P17, E67, E68, E69, E70, E71, E72

Findings:

The General Coordination of Aquatic Animal Health (GCAAH) from MPA was responsible for undertaking IRA's concerning requests for importation of any fish or fishery product, including live aquatic animals and their gametes into Brazil.

In case a country wishes to export fish or fishery commodities to Brazil, the authorization request is made through the SVS. If sanitary conditions for export have not yet been established, the MPA will conduct a preliminary analysis (technical notes) and deliberate on the need to conduct an IRA and/or define import conditions. All documents (conditions and technical notes) are publicly available on the MPA web site available at;

<http://www.mpa.gov.br/monitoramento-e-controle/sanidade-pesqueira/166-importacao/114-requisitos-zoossanitarios-de-importacao>

When no IRA is necessary, the potential exporter is informed and the process is followed by the MAPA competent services (see CCII-4). MPA has also developed a bilingual interactive manual on Inactivation Methods for Pathogens of Aquatic Animals that is used for IRA support.

A table presenting the issues and status of the IRA's in development is available on the MPA web site available at;

http://www.mpa.gov.br/files/docs/Monitoramento_e_Controlo/IMPORTACAO/Tabela_de_Processos_de_ARI-18.08.2015.pdf

The IRA process is based on OIE guidelines and with reference to the SPS Agreement and WTO recommendations. Clear procedures have been defined by the regulatory framework including the responsibilities of MAP and MAPA. It was noted that risk management measures take on board outcomes of the IRA's, but not in all cases. IRA's are conducted for imports, but no evidence of risk analysis is being used for other AAH policies.

Recognising the lack of resources, but also the need to include more advanced methods and wider expertise in IRA, the MPA has subcontracted AQUAEPI, which is formed by a consortium of universities with epidemiological expertise, to support risk analysis activities.

Strengths:

- The IRA process is based on OIE guidelines;
- IRA's are done for importation of live animals and aquatic products;

-
- High level of transparency in communication of IRA procedure and results to all interested parties and general public.

Weaknesses:

- Due to limited federal staff resources, IRA's are conducted by an external contractor, but a process for internal and external peer review of reports and governance/decision making steps are not in place.

Recommendations:

- External review procedures for IRA conclusions should be implemented.

II-4. Quarantine and border security	Levels of advancement
<i>The authority and capability of the VS or AAHS to prevent the entry and spread of diseases and other hazards of aquatic animals and aquatic animal products.</i>	1. The VS or AAHS cannot apply any type of quarantine or border security procedures for aquatic animals or aquatic animal products with their neighbouring countries or trading partners.
	2. The VS or AAHS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis.
	3. The VS or AAHS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities ⁸ relating to the import of aquatic animals and aquatic animal products.
	4. The VS or AAHS can establish and apply quarantine and border security procedures which systematically address legal pathways and illegal activities.
	5. The VS or AAHS work with their neighbouring countries and trading partners to establish, apply and audit quarantine and border security procedures which systematically address all risks identified.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L3, L27, PP4, E12, E40, E54, E55, E56, E57, E58, E59, E60

Findings:

Having only occurred twice (shrimp broodstock in 2007 and Tilapia fingerlings in 2015), aquatic animal imports are rare except for aquatic ornamental animals. Due to this low demand, it was difficult to assess the capability of the VS to prevent the entry and spread of aquatic pathogens for aquaculture species. However, the higher frequency of importation for aquatic ornamentals (e.g. GRU airport in Sao Paulo has had approximately 200,000 units in over 100 aquatic consignments during 2015. 100% were ornamental animals) undergoes a rigorous inspection process by VIGIAGRO on arrival.

The process is well documented with an electronic system for submitting consignments, although importers must also submit paper copies in-person or by mail. All importers are registered and brokers are licensed with permissions required from the importer. Animal health certificates are submitted separately. All importing documentation is registered on a restricted access online system (SIGVIG Information System for Export and Import, Sistema de Informacao Gerenciais de Importacao e Exportacao do Vigiagro). Transport conditions are not regulated by authorities. Live fish must have a prior approval with sanitary restrictions directed by MAPA and IBAMA (Instituto Brasileiro do Meio Ambiente, Ministry of Environment). Through a documented agreement, MAPA and MPA set procedures for IBAMA, which restricts entry of listed species. The list was created using risk analysis (e.g. cyprinids cannot be imported). MAPA directs all animal health requirements, including those of the pre-approved quarantine facilities. During the inspection of randomly selected units there is observation for clinical disease and mortalities, but no requirement for diagnostic testing for aquatic pathogens. IBAMA is responsible for verifying species identification if required. Any observation of high mortality will result in inspection of a higher proportion of units.

Upon visual inspection, high mortality shipments will result in destruction of the entire consignment, but there will be no diagnostic procedures to determine cause of mortality (most high level mortalities are considered to be caused from poor shipping conditions). Since there are no facilities capable of carrying out the destruction at the point of entry, the consignment is released to a Customs-approved location or returned to origin.

⁸ Illegal activities include attempts to gain entry for aquatic animals or aquatic animal products other than through legal entry points and/or using certification and/or other procedures not meeting the country's requirements.

Inspectors have training and continuing education in recognizing animal disease states, but it is generic for species and rearing systems and not specific for aquatic animals. Due to budget constraints, external audits of procedures have not been performed in the past three years, but internal audits are done annually. There are no inspection fees, only customs taxes on imports.

The Normative Instruction No. 36 that regulates import conditions for live animals is currently under review.

The primary entry for border security occurs at two international airports (Sao Paulo and Rio de Janeiro). Land border security was not observed by the Team and was considered by Brazilian officials as a much lower priority due to the lack of any documented aquatic animal movements through these locations.

Quarantine facilities for imported aquatic ornamental animals are established and organized. A list of facilities is publicly available at;

http://www.mpa.gov.br/files/docs/Monitoramento_e_Control/Lista-de-Quarentenarios-01.04.15.pdf.

Specific legislation defines the conditions for approval of quarantine facilities.

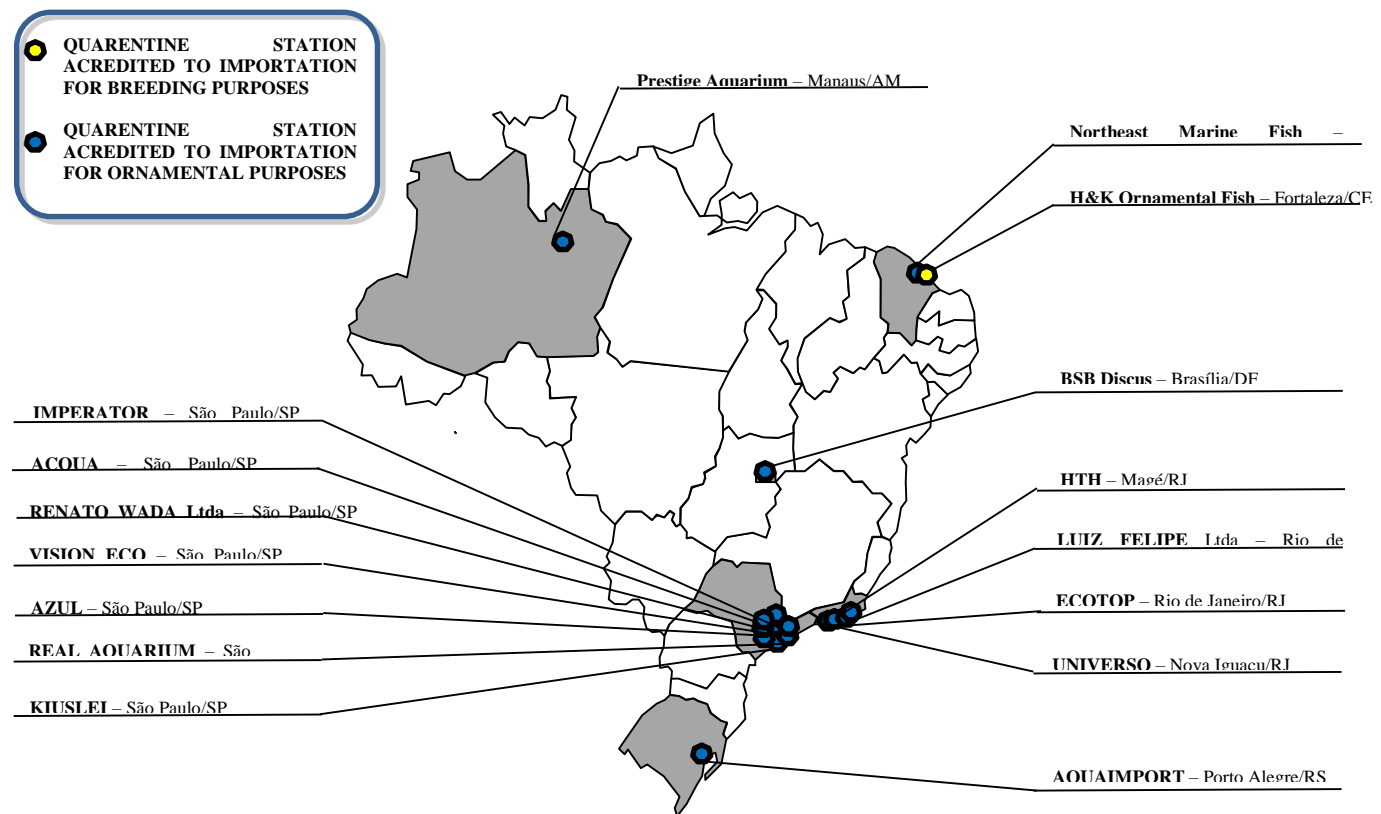


Figure 23: Location of approved quarantine facilities for aquatic animals

Fiscalização e controle nos pontos de ingresso

animais e produtos agropecuários

Coordenação-Geral de
Vigilância Agropecuária
Internacional
(VIGIAGRO)

- POSTOS DE FRONTEIRA - 26
- ADUANAS ESPECIAIS - 27
- PORTOS ORGANIZADOS - 31
- AEROPORTOS INTERNACIONAIS - 29

113 Unid. de Vigilância



Ministério da Agricultura, Pecuária e Abastecimento

Figure 24: Border inspection posts

Strengths:

- All aquatic animals entering the country through the international airports are rigorously inspected;
- Documentation of imports is thorough.

Weaknesses:

- Training in aquatic animal pathogen identification is minimal for Veterinary services inspecting imported animals;
- Audits of procedures are not done;
- There is no capacity for destruction of rejected stock (or associated water) on premise.

Recommendations:

- Develop an on-going training program for inspectors for recognition of aquatic animal diseases;
- Modernize the informatics capabilities for tracking imports and exports of live aquatic animals;
- Develop readiness for importation of aquaculture species (i.e. not only ornamentals) and prevention of pathogen entry;
- Establish routine audit inspection procedures with a scheduled frequency;
- Review import risk analysis for ornamental live animals to take into account volumes imported and possible risks to ornamental fish local production and biodiversity.

II-5. Epidemiological surveillance and early detection <i>The authority and capability of the VS or AAHS to determine, verify and report on the sanitary status of the aquatic animal populations including wildlife under their mandate.</i> A. Passive epidemiological surveillance	Levels of advancement
	1. The VS or AAHS have no passive surveillance programme.
	2. The VS or AAHS conduct passive surveillance for some relevant diseases and have the capacity to produce national reports on some diseases.
	3. The VS or AAHS conduct passive surveillance in compliance with OIE standards for some relevant diseases at the national level through appropriate networks in the field, whereby samples from suspect cases are collected and sent for laboratory diagnosis with evidence of correct results obtained. The VS have a basic national disease reporting system.
	4. The VS or AAHS conduct passive surveillance and report at the national level in compliance with OIE standards for most relevant diseases. Producers and other interested parties are aware of and comply with their obligation to report the suspicion and occurrence of notifiable diseases to the VS.
	5. The VS or AAHS regularly report to producers and other interested parties and the international community (where applicable) on the findings of passive surveillance programmes.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, L3, L7, PP17, E11, E16, E44, PP9, PP16

Findings:

The list of aquatic notifiable diseases is composed of 27 diseases from fish, molluscs and crustaceans, including diseases listed by the OIE and diseases considered important to national aquaculture.

<http://www.agrodefesa.gov.br/publicacoes/sanidade-animal/programas/1029-mpa-portaria-n-192015/file>

In accordance with the Article 96 of the Normative Act n. 4/2015, the list of animal diseases mentioned will be revised and published periodically considering changes in the epidemiological situation of the country and world, results of studies and scientific research, the OIE recommendations, or whenever it is necessary for the preservation of interests of public or animal health in the country. An important component of passive surveillance would be the likelihood that a significant disease event (notifiable disease or not) at an aquatic animal growing facility would actually be reported to the VS. It was evident in the Team meetings with state and local officials that there is very low expectation that government officials would respond to such notifications or have the capacity and training to investigate. Since there would be no benefit to reporting, it is likely that the number of farms simultaneously encountering animal health issues (e.g. mortality) would need to be very large before demands for investigation would attract the attention of state or federal officials. VS training in aquatic animal diseases is minimal, thus further decreasing the expectations for regulatory involvement. One of the states visited had one single notification for collection of samples for disease diagnosis in 2015 and none in 2014.

The General Transport Authorization (GTA) system of registering farms intending to harvest animals with transport to another location is well-established for terrestrial animal movements, starting in 2006, and has been applied more recently by many states to aquatic animals (some states appear to be in early stages of adoption for aquatic animals). These authorizations apply to all movements of animals except when a processing plant is the same as the production area, thus eliminating the need for GTA documentation when selling to local markets. It is difficult to determine what proportion of the animal movements might occur without the requirement for GTA, but it is expected to be substantial. Since most states (e.g. the Team met with state officials from Mato Grosso) have only initiated their GTA requirements for aquaculture sites, many fish farms are not on the system or are registered only because they also have other terrestrial farm animals on-site. Many farms produce for their own consumption or local sales and do not register their farms.

A GTA is required for all movements of live animals, including aquatic ornamentals, in accordance with the Normative Act MAPA 18/2006 however there is limited rate of local registration of these facilities by the VS.

The registry of aquaculture farms is incomplete and farm characteristics or geographical locations are not described at a national level. Minas Gerais reported that the 418 fish farms registered are likely to represent only 20% of the total existing in the state.

SVS are in various stages of GTA implementation and biosecurity measures to aquatic animals. Although federal funding agreements for developing this capacity were documented, the actual availability of funds was delayed or stalled. This creates a gap in implementation of many aspects, including expanding the training in AAH and federally notifiable diseases.

The Normative No. 4 of February 2015 on the AAH program establishes several tools that will support epidemiological surveillance, such as the Farm Production Bulletins, biannual official controls to farms and the obligation to report unusual mortalities (above 30%), but the implementation of the legislation was postponed until 2017 and at the moment producers are resistant to provide such information.

The obligation for each aquaculture establishment to have a responsible veterinarian is also described, but implementation across states varies and there are no specific requirements concerning specific training on AAH.

Strengths:

- Federal efforts to define notifiable diseases and develop agreements with states on identifying production sites are a recent advancement toward passive surveillance capabilities.

Weaknesses:

- Incomplete register of aquatic animal production sites;
- Lack of incentive for producers to notify authorities of aquatic animal disease events means that passive surveillance will likely be greatly delayed until widely distributed occurrence;
- AAH expertise available for most production sites is very limited.

Recommendations

- Fully implement the planned registration process for all aquatic animal producers, including those who produce for own, or local, consumption;
- Ensure all mortality records are maintained and compulsorily reported as a requirement for on-going registration;
- Provide more training opportunities to local producers on recognizing disease events and process for investigating using public resources;
- Provide financial incentives for diagnostic capacity to be developed regionally so that producers have access to affordable and regular (or even mandatory) health visits;
- Educate farmers on the importance of good health management and reporting so as to improve farm productivity.

B. Active epidemiological surveillance	Levels of advancement
	1. The VS/ AAHS have no active surveillance programme.
	2. The VS/ AAHS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly.
	3. The VS/ AAHS conduct active surveillance in compliance with scientific principles and OIE standards for some relevant diseases and apply it to all susceptible populations but do not update it regularly.
	4. The VS/ AAHS conduct active surveillance in compliance with scientific principles and OIE standards for some relevant diseases, apply it to all susceptible populations, update it regularly and report the results systematically.
	5. The VS/ AAHS conduct active surveillance for most or all relevant diseases and apply it to all susceptible populations. The surveillance programmes are evaluated and meet the country's OIE obligations.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, PP19, PP15, and PP16.

Findings:

Except for food safety biotoxin testing (covered elsewhere in the competencies), there is no evidence for active surveillance programs of notifiable pathogens in any aquaculture species.

Strengths:

- The federal diagnostic laboratory system has recently been established and cooperation with university epidemiologists provides the expertise necessary to design and initiate active surveillance programs.

Weaknesses:

- There is no established or on-going active surveillance program for aquatic animal pathogens;
- Interaction with farmers and SVS will require credibility that any proposed active surveillance program will benefit the long-term health and improve the productivity of the sector.

Recommendations:

- Identify priority areas for establishing active surveillance programs based on sector expansion plans and the risk of transmission and economic impact potential for notifiable diseases;
- Identify funding opportunities to develop baseline information by working with academic, private, and local VS;
- Ensure all mortality records are maintained and compulsorily reported as a requirement for on-going registration.

II-6. Emergency response	Levels of advancement
<p><i>The authority and capability of the VS or AAHS to respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency).</i></p>	1. The VS or AAHS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.
	2. The VS or AAHS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately.
	3. The VS or AAHS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command. They may have national contingency plans for some exotic aquatic animal diseases but they are not updated/tested.
	4. The VS or AAHS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS or AAHS have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They have national contingency plans for some exotic diseases that are regularly updated/tested.
	5. The VS or AAHS have national contingency plans for all diseases of concern, including coordinated actions with relevant Competent Authorities, all producers and other interested parties through a chain of command. These are regularly updated, tested and audited.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L24, L25, L26

Findings:

It is obvious that different states have very different capacity for rapid and comprehensive response to aquatic animal disease outbreaks or food safety events. Rio Grande Norte, a state with significant shrimp production, has minimal evidence of authority or capability for a VS response to a sanitary emergency. However, Santa Catarina, a state with most of the country's mollusc production, has an established and comprehensive emergency response plan.

Much of an appropriate emergency response plan depends upon the ability to detect and trace animal movements. As was outlined in the passive surveillance competency, the ability to detect a major disease outbreak would likely be delayed or undetected and thus any emergency response would be less effective due to time delays. Furthermore, the ability to trace animal movements or institute product recalls for food safety issues would be compromised by these lag periods. It should be noted that contingency plans for specific disease outbreaks are planned, but not finalized. Investigations of aquatic animal disease outbreaks relies on general terrestrial Veterinary knowledge applied to aquatic production situations without specific training or diagnostic support for aquatic animal diseases.

The legal framework for declaring an emergency is confusing and relies on different levels of undifferentiated responsibilities. Regulatory authority and funding for outbreak investigations is unclear due to the underdeveloped SVS involvement in AAH. Any indemnification within a regulatory disease containment plan, such as ordered stock depopulation, is not clearly defined and the state and federal agency responsibilities are not delineated. The coordination of an emergency response is difficult to predict for most aquatic sanitary emergencies based on observations during the Team visits.

Strengths:

- Mollusc food safety emergency response appeared to be well developed in Santa Catarina state;
- Federal plans for confirming (i.e. diagnostic laboratory capabilities) disease outbreaks and interacting with SVS have been initiated.

Weaknesses:

- The roles and responsibilities of the different VS levels across federal, state, municipal, and private sector, have not been clearly defined;
- Coordination of an emergency response is unclear;
- Authority and funding commitments for emergencies is confusing and insufficiently developed to facilitate rapid and effective responses;
- Ability to detect and trace outbreaks of aquatic animal diseases or food safety events is frequently lacking or would be delayed due to lack of specific disease contingency planning.

Recommendations:

- Develop a clear regulatory framework that outlines roles and responsibilities of different levels of VS to be involved in emergency responses;
- Establish clear financial policies for investigations and responses to aquatic animal disease outbreaks identified as requiring regulatory actions;
- Establish clear compensation agreements for fish farmers;
- Develop an aquatic emergency response manual;
- Develop emergency response support manuals such decontamination and disposal manuals;
- Conduct a simulation exercise and review.

II-7. Disease prevention, control and eradication	Levels of advancement
<i>The authority and capability of the VS or AAHS to actively perform actions to prevent, control or eradicate OIE listed diseases and/or to demonstrate that the country or a zone are free of relevant diseases.</i>	1. The VS or AAHS have no authority or capability to prevent, control or eradicate aquatic animal diseases.
	2. The VS or AAHS implement prevention, control or eradication programmes for some diseases and/or in some areas with little or no scientific evaluation of their efficacy and efficiency.
	3. The VS or AAHS implement prevention, control or eradication programmes for some diseases and/or in some areas with scientific evaluation of their efficacy and efficiency.
	4. The VS or AAHS implement prevention, control or eradication programmes for all relevant diseases but with scientific evaluation of their efficacy and efficiency of some programmes.
	5. The VS or AAHS implement prevention, control or eradication programmes for all relevant diseases with scientific evaluation of their efficacy and efficiency consistent with relevant OIE international standards.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, E20, E29

Findings:

The responsible authority, MPA (now MAPA) has a strong awareness of OIE standards for aquatic animal pathogens and has developed the federal legal framework to address its international reporting obligations.

Farming sectors that have dealt with major disease outbreaks, such as white spot syndrome experienced several years ago in Brazilian shrimp farms, have adapted their health management systems to incorporate many standard biosecurity practices. For example, all-in-all-out stocking and harvesting plans with lime and drying treatments of the ponds between crops have contributed to a stable strategy that reduces the probability of new outbreaks or transmission between populations. However, many of these management strategies are based within company policies and are not part of regulated programs involving state or federal authorities.

The vast majority of the aquatic animal production is directed toward the domestic market. This presents multiple challenges for disease prevention and control since many economically important diseases are not a current concern for international trade. Hence, the motivation for disease control is to improve productivity, financial efficiency and sustainability at the farm level and not at the regulatory level. However, such regulations have less bearing on the international disease status. This generates a practical challenge in obtaining appreciation by producers and local VS regarding the need for regulated aquatic animal disease reporting and control. Development of a comprehensive system to detect, prevent, and control internationally reportable diseases depends on the full participation from producers to federal regulators. At this point, the federal components of establishing the framework are much more developed in spite of the lack of local participation or buy-in for the need of any regulatory involvement.

It is in the best interests of the entire aquaculture industry that the regulatory framework is fully implemented; particularly when it gets to the stage of development that enables more export of product, but convincing the different stakeholders is an obvious challenge. This impediment is obvious even in the implementation of farm registration and emission of animal movement documents (GTA), in which it is difficult to demonstrate an immediate benefit for farms to participate in animal traceability programs. Marketing and promotional strategies for the implementation of registration should take into account the primary reason for registration is to provide AAHS to improve productivity.

Although the majority of Brazilian aquaculture production is of an exotic finfish species Tilapia (46.62%) the aquaculture production of finfish species that are unique to Brazil is increasing. Pathogens unique to these species or growing environments may be less a

concern for international reporting than for supporting the productivity, health and sustainability of the local industry. Regulations have a role in reducing pathogen transmission between farms to minimize industry-wide disease impacts. However, the ability to prevent and control endemic diseases may require a different approach. It will definitely require substantial investment in applied health research to determine optimal detection and mitigation strategies. Currently, widespread aquatic disease events would likely go undetected for a considerable time period due to the lack of local VS expertise in aquaculture and the general lack of scientific information about Brazilian species and diseases.

Stamping out disease has not occurred in aquatic animal production thus far in Brazil. Compensation programs would involve complex and poorly defined interactions between state and federal authorities and would apply to aquatic producers, in theory, under the same program as terrestrial food animals. However, as it has never been enacted for aquatic animal disease, it is unclear how it would occur and who would assume decision-making responsibility.

CC II-7 is one of the most important PVS critical competencies for AAHS and therefore, it is a difficult critical competency to evaluate due to it being dependent on the effective coordination and functionality of so many other AAHS, such as; reporting, sampling, diagnostics and laboratory support, proper and responsive drug use, movement notification, on-farm biosecurity practices, and emergency response. Therefore, recommendations should generally include; expanding the role, structure and delegation authority of the CGSAP to improve the core priority AAHS supporting this critical competency.

Strengths:

- The legal framework for internationally reportable diseases is established by the federal government;
- There is strong awareness in the national government for OIE international standards.

Weaknesses:

- The probability of reporting by aquatic animal producers of any disease events is low due to the lack of recognition of its value to their livelihood;
- Disease prevention programs are not part of the natural production considerations for most aquaculture farmers;
- Many cultured species and endemic pathogens are unique to Brazil and, as such, are not part of the internationally recognized disease concerns with reporting requirements.
- The CA is minimally engaged in local health management of aquaculture populations making disease prevention and control difficult to impose on farms.

Recommendation:

Please note: many other recommendations throughout this document will provide essential support for this critical competency.

- Provide investment in applied research and training programs to expand the knowledge base regarding disease detection and management of local species and their pathogens;
- Establish contingency plans that clearly define funding and roles and responsibilities for any disease prevention, control, or stamping out programs;
- Require mandatory on-farm biosecurity plans as a requirement of on-going farm registrations;

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- Require compulsory mortality reporting as a requirement of on-going farm registration.
 - Expand the role, structure and delegation authority of CGSAP within the new MAPA structure to administer all AAHS programs in Brazil as defined in existing aquatic animal health plans and those proposed in this evaluation.

II-8. Food safety	Levels of advancement
<p>A. Regulation, authorisation and inspection of establishments for production, processing and distribution of food of aquatic animal origin</p> <p><i>The authority and capability of the VS or AAHS to establish and enforce sanitary standards for establishments that produce, process and distribute food of aquatic animal origin.</i></p>	1. Regulation, authorisation and inspection of relevant establishments are generally not undertaken in conformity with international standards.
	2. Regulation, authorisation and inspection of relevant establishments are undertaken in conformity with international standards in some of the major or selected premises (e.g. only at export premises).
	3. Regulation, authorisation and inspection of relevant establishments are undertaken in conformity with international standards in all premises supplying throughout the national market.
	4. Regulation, authorisation and inspection of relevant establishments (and coordination, as required) are undertaken in conformity with international standards for premises supplying national and local markets.
	5. Regulation, authorisation and inspection of relevant establishments (and coordination, as required) are undertaken in conformity with international standards at all premises (including on-farm establishments).

[Note: This critical competency primarily refers to inspection of processed animal products and raw products other than meat (e.g. milk, honey etc.). It may in some countries be undertaken by an agency other than the VS.]

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L10, L15, L30, L31, PP9, PP11, E43, E45, E46, E49, E52, E53, E83

Findings:

Note: During the mission only establishments authorized and inspected by the Federal Inspection Services (SIF) were visited. The procedures and legal requirements in place for fish and fishery products for human consumption are similar to the ones described in PVS Brazil Follow-up Report 2014.

All establishments for production, processing and distribution of food of animal origin are registered at one of the three levels of government administration (federal, state and municipal) through a detailed legal process.

The Fish and Fishery Inspection Division (DIPES) of MAPA is responsible at the federal level for coordination of actions, definition of procedures and drafting of legislation. State legislation may differ from the federal legislation, but hygienic sanitary requirements can never be lower.

DIPES main activities are the industrial and sanitary inspection of fish and fishery products produced by processing plants that are able to export and trade among Brazilian States. DIPES is one of the divisions of the Department of Inspection of Animal Origin Products (DIPOA).

Each SIF has the responsibility to evaluate and authorize industrial establishments at its state. Brazil has 309 processing plants and one factory vessel approved by the SIF of which 82 are able to export.

Authorizations of establishments at state level are delivered by the State Inspection Services (SIE) and can only trade their products within their own state.

Authorisations of establishments at municipal level are delivered by local authority (SIM) responsible under Human Health regulations.

The food inspection services employ 862 Veterinary inspectors and 1,912 auxiliaries (without university qualifications). A total of 96 Veterinarians are employed by SIF across the country with responsibilities regarding fish and fishery products but only 26 are exclusively for fish.

No information is available at central (federal level) of how many establishments are registered at state or municipal level, SIE and SIM respectively.

Audits and training of SIF services should be implemented by DIPES, Service of Animal and Plant Inspection (SEFAG), and DIPOA, but the Team did not find evidence of inspection from the federal services at any of the states or establishments visited. DIPES has informed the Team that the last auditing of SIF services was performed in 2010. Lack of funding has also made it impossible to execute training for fish inspectors since 2013, although some states probably have promoted their own training programs, e.g. Santa Catarina. Training of new staff is conducted in service by more experienced colleagues.

All Brazilian fishing vessels are registered and inspected by the Brazilian Navy, but the inspection does not concern sanitary aspects. Only factory and freezer vessels are inspected by MAPA. Fishing vessels under MAPA responsibility should be inspected every three years.

A program for the improvement of fishing vessels sanitary conditions has been approved by the MPA under the coordination of CGSAP, but a period of five years has been granted for the gradual conversion or dismantling of fishing vessels. The program has made credit available for boat owners to implement the necessary changes. Responsibility for the inspection of fishing vessels will be delegated to each of the SVS's.

Landing of extractive fisheries is carried out in various non-registered locations and structures; there are 50 of those only in Itajai. The MPA has invested resources to build "Public Fisheries Terminals" (TPP's), which are physical structures equipped for the needs of fish landing, storage, processing and sale. All TPP's have an ice factory, which is registered by the municipal health agency. The administration of TPP's is public and many are considered fish "ENTREPOSTO" with SIF, and therefore, are subject to MAPA legislation. From these nine, only two are in operation (Vitoria and Santos). The team did not visit any of the operational TPP's.

Strengths:

- Authorisation, supervision and inspection of all establishments is regulated at all levels;
- The SIF can establish and enforce sanitary standards for establishments that produce process and distribute fish and fishery products in conformity with international standards, but it was not possible to ascertain if the same standards were maintained on premises supplying the local market;
- The SIF audits a selection of establishments registered at the federal level based on risk ranking.

Weaknesses:

- The central coordination services have limited knowledge of the procedures followed at establishments with SIE and SIM registration;
- There is no auditing of the establishment approval system or training of officials;
- The inspections programmes at local level are not based on risk ranking of the establishments.

Recommendations:

- Develop a comprehensive evaluation of the establishments authorisation/approval process at state and municipal level to ensure common standards of food safety;
- Develop training programs for inspection service officials and auxiliaries and a structured auditing and verification process across states.

B. Inspection of collection, slaughter, processing and distribution of products of aquatic animal origin <i>The authority and capability of the VS or AAHS to inspect, manage, implement and coordinate aquatic animal production and food safety in relation to the collection, slaughter, processing and distribution of products of aquatic animals.</i>	Levels of advancement
	1. Inspection, management, implementation and coordination (as appropriate) are generally not undertaken in conformity with international standards, including collection of disease information.
	2. Inspection, management, implementation and coordination (as appropriate) are generally undertaken in conformity with international standards only for export purposes, including collection of disease information.
	3. Inspection, management, implementation and coordination (as appropriate) are generally undertaken in conformity with international standards only for export purposes and for products that are distributed throughout the national market, including collection of disease information.
	4. Inspection, management, implementation and coordination (as appropriate) are generally undertaken in conformity with international standards for export purposes and for products that are distributed throughout the national and local markets, including collection of disease information.
	5. Inspection, management, implementation and coordination (as appropriate) are undertaken in full conformity with international standards for products at all levels of distribution (including national and local markets and direct sales), including collection of disease information.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L30, L31, E4, PP4, E17, E18, E48

Findings:

Note: During the mission only establishments authorized and inspected by the Federal Inspection Services (SIF) were visited. The procedures and legal requirements in place for fish and fishery products for human consumption are similar to the ones described in PVS Brazil Follow-up Report 2014.

The responsibilities for the safety of the products is shared between the Industry that has the responsibility to ensure the quality of processes and products and develop, implement and maintain programs to ensure the hygienic and sanitary quality of their products (GMP, Portaria MAPA nº. 368/1997 and HACCP, Portaria MAPA nº 46/1998), the government must verify compliance to legislation with evaluation of the implementation and execution of self-control programs (supervision and HACCP audits).

The system in place for SIF establishment inspection does not require the constant presence of the Veterinary or auxiliary inspector, but only monthly visits in accordance to a scheduled program. The inspector must verify the company self-controls and implementation of corrective actions, collect samples of water, ice and/or product for microbiological analysis and review the documentation and production process. Control of fraudulent activities like incorrect labelling is also part of the inspector's duties. The team has found evidence of the inspectors' activity and actions taken in case of non-compliances as well as no action when possible risks to the safety of the products were observed.

Controls on arrival of incoming products are generally based on organoleptic characteristics and temperature. No candling table was present at the filleting establishment visited although it is required by the national legislation. Incoming fish, crustacean, and mollusc must have a document of origin, which can be a movement document (GTA), a fiscal invoice and in the state of Mato Grosso was replaced by a certificate of harvest. The legislation on AAH to be implemented in 2017 will require a certificate of origin for all fishery products to be accepted at establishments. For the moment, links with sanitary conditions in aquaculture or traceability of wild-catch fishery products is not always ensured.

The MPA is responsible for the national program for bivalve mollusc controls. The program includes the monitoring of marine biotoxins in bivalves (amnesic, paralytic and diarrhetic shellfish toxins), the identification and quantification of harmful algae in the environment, and

E. coli quantification. The program is implemented by CIDASC, the SVS of Santa Catarina, the main bivalve producing state, and laboratory support from LAQUA and the laboratory of the University of Santa Catarina, which is certified by LANAGRO for microbiological analysis. A random sampling strategy of molluscs and water is in place and detection above certain pre-defined limits leads to the interdiction of harvest from certain areas. The results are published on the web for consumer information and farmers are only allowed to harvest again after two consecutive results below the limit.

A monitoring program based on sampling and laboratory analysis for microbiological and chemical contamination is in place for aquatic origin products. Efforts to achieve representative sampling levels have been made recently by MAPA and LANAGRO laboratories supporting the program are ISO: 17025 certified and capable of handling a large number of samples and tests.

Strengths:

- SIF fishery products establishments operate a system of self-controls under official supervision;
- The authorities have the capacity to enforce corrective actions when necessary;
- A comprehensive program for monitoring of marine biotoxins and faecal contamination in shellfish is in place;
- The MPA is aware of the need to improve sanitary conditions during fisheries and at landing, and a series of actions were initiated.

Weaknesses:

- The systems for ensuring the food safety standards of aquatic origin products in SIE and municipal establishments are not well known and are most likely not equivalent to the ones in place for SIF;
- The follow up of corrective actions is challenging due to insufficient number of staff for routine inspections tasks on the establishments;
- Landing of fisheries occur in the larger majority without any kind of sanitary inspection.

Recommendations:

- Improve sanitary controls of aquatic products from fisheries;
- Ensure food safety assurance systems for all establishments;
- Aspects related with the controls of sanitary status of primary production need to be improved, including collection of parasitic zoonosis and animal disease information at the level of the establishments.

II-9. Veterinary medicines and biologicals	Levels of advancement
<i>The authority and capability of the VS or AAHS to regulate Veterinary medicines and Veterinary biologicals, in order to ensure their responsible and prudent use, i.e. the marketing authorisation, registration, import, manufacture, quality control, export, labelling, advertising, distribution, sale (includes dispensing) and use (includes prescribing) of these products.</i>	1. The VS or AAHS cannot regulate Veterinary medicines and Veterinary biologicals.
	2. The VS or AAHS have some capability to exercise regulatory and administrative control over Veterinary medicines and Veterinary biologicals in order to ensure their responsible and prudent use.
	3. The VS or AAHS exercise regulatory and administrative control for most aspects related to the control over Veterinary medicines and Veterinary biologicals in order to ensure their responsible and prudent use.
	4. The VS or AAHS exercise comprehensive and effective regulatory and administrative control of Veterinary medicines and Veterinary biologicals.
	5. The control systems are regularly audited, tested and updated when necessary.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L11, L18, L32, PP3, PP18, E81

Findings:

Note: During the mission no authorised establishments for import, production or sale of Veterinary medicines for use in aquatic animals were visited. The procedures and legal requirements in place for aquatic Veterinary medicines are similar to the ones described in PVS Brazil Follow-up Report 2014.

The Coordination Unit for the Inspection of Veterinary Products (Coordenação de Fiscalização de Produtos Veterinários, CPV) of the Department for the Inspection of Livestock Inputs (*Departamento de Fiscalização de Insumos Pecuários*, DFIP) is in charge of inspection and supervision for all biologicals and Veterinary medicines, including those to be used in aquatic animals. The registration and inspection process is comprehensive; it includes control of Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), regular inspections, and benefits from the support of relevant laboratory analysis (LANAGRO). An annual plan for inspection of production and sale points is in place. At state level, the VS are in charge of registration and inspection of retailers of Veterinary medicines.

A very small number of Veterinary medicines are registered for use in AA, mostly for ornamental fish (see table). A registered vaccine for tilapia called “Aquavac® Strep SA” for *Streptococcus agalactiae* is available and it is largely used in some parts of the country. Off label use of Veterinary medicines is not allowed. Veterinary medicines in aquaculture can only be used under Veterinary prescription; however there is no obligation to record the use of any kind of Veterinary medicines at farm level. One of the fish farms visited mentioned that they had used antimicrobials administered in the feed to fish of non-commercial size; however, they were not aware of the need for safe disposal or obligations on withdrawal period.

There is no feed producing establishment specifically authorized to produce medicated aquatic animal feed, but when a company is authorised the authorization is valid for the production of any species medicated feed.

Strengths:

- Clear regulatory requirements for all aspects related to import, production, sale and use of Veterinary medicines are available.

Weaknesses:

- Lack of controls on the use of Veterinary medicines in aquaculture;
- The limited availability and the lack of “on farm controls” could incentivise for the illegal use of Veterinary drugs.

Recommendations:

- Implement a farm control procedure to ensure that VMP sale and usage is under the effective and direct supervision of a veterinarian. For example; this could be implemented as part of compulsory on-farm biosecurity planning that would be a requirement of farm registration;
- Define conditions for safe use and disposal of VMP, in particular antimicrobials that guarantee the protection of the environment, animal health and public health.

Table 22: Products registered by MAPA for use in aquaculture

Product name	Laboratory	Species	MAPA licence number
AQUAFLO^R* 50% PREMIX	INTERVET DO BRASIL VETERINÁRIA LTDA	Trouts and Tilapia	9.319/07
AQUAVAC[®] STREP SA	INTERVET DO BRASIL VETERINÁRIA LTDA	Tilapia	9.610 em 19/07/2011
FATOR ENDECTO PEIXES ORNAMENTAIS	ARENALES	Shrimps, molluscs, frogs and aligators	Cadastro nº 091-SP/10
FATOR ESTRESSE AQUICULTURA	ARENALES	Fish	Cadastro nº 092-SP/10
FATOR ESTRESSE PEIXES ORNAMENTAIS	ARENALES	Ornamental fish	Cadastro nº 083/09-SP
FATOR FÉRTIL AQUICULTURA	ARENALES	Fish	Cadastro nº 093-SP/10
FATOR FÉRTIL PEIXES ORNAMENTAIS	ARENALES	Ornamental fish	Cadastro nº 082/09-SP
FATOR INFECCÕES AQUICULTURA	ARENALES	fish	Cadastro nº 094-SP/10
FATOR INFECCÕES PEIXES ORNAMENTAIS	ARENALES	Ornamental fish	Cadastro nº 085/09-SP
FATOR PRO DIGESTÃO AQUICULTURA	ARENALES	Fish	Cadastro nº 095-SP/10
FATOR PRO DIGESTÃO PEIXES ORNAMENTAIS	ARENALES	Ornamental fish	Cadastro nº 084/09-SP
FF-50 (FLORFENICOL 50% PÓ ORAL)	FAV DO BRASIL	Trout	9.593/2011
LABCON BACTER	ALCON LTDA.	Ornamental fish	8.917/2004
MASOTEN	BAYER	Freshwater fish	3.736 em 23/05/91
TM-700	PHIBRO SAÚDE ANIMAL INTERNACIONAL LTDA	Fish and Crustaceans	9.002 em 10/12/04

II-10. Residue testing	Levels of advancement
<i>The capability of the VS or AAHS to undertake residue testing programmes for Veterinary medicines, chemicals, pesticides, radionuclides, metals, etc.</i>	1. No residue testing programme for aquatic animal products exists in the country.
	2. Some residue testing programme is performed but only for selected aquatic animal products for export.
	3. A comprehensive residue testing programme is performed for all aquatic animal products for export and some for domestic consumption.
	4. A comprehensive residue testing programme is performed for all aquatic animal products for export and domestic consumption.
	5. The residue testing programme is subject to routine quality assurance and regular evaluation.

[Note: This critical competency may in some countries be undertaken by an agency or agencies other than the AAHS.]

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E3, E4, L11, L18, L19, E64, E65, E66

Findings:

MAPA is responsible for the execution of Brazil's National Plan for the Control of Residues and Contaminants (*Plano Nacional de Controle de Resíduos e Contaminantes*, PNCRC).

Fishery products are also included in the program. The samples are taken from SIF establishments in a random manner up to the yearly predefined number of samples. The yearly program is available online after publication in the official gazette:

http://www.agricultura.gov.br/arg_editor/file/CRC/Normative%20Instruction%202013-2015%20-%20Brazil%20Residues%20Program%202015%20-%20PNCRC%20Animal.pdf

Fish product selection covers wild fish, farmed fish and shrimp, but is not risk based. The program does not cover establishments approved at state or municipal level.

The General Coordination for Laboratory Support (CGAL/SDA) and the Coordination for Residues and Contaminants (CRC/SDA) distributes the samples among the laboratories in the National Network of Animal and Plant Laboratories to perform the analyses. Six official (public) and seven accredited (private) laboratories form the network for PNCRC. PNCRC aims to obtain information about the frequency, the levels and distribution of inorganic contaminants, dyes, organochlorine, pesticides, dioxins, furans, and PCB's, as well as violations of the Maximum Residue Limits of Veterinary Medicinal Products (LMRVM) and the use of prohibited drugs.

Since the program implementation in 2002 there has been no detection of violation of MRL's in fishery products. In case of exceeding values the establishment is notified and the product must be recalled.

As aquaculture production often occurs in areas with extensive crop agriculture, there exists a reasonable risk that pesticide runoff will drain into aquaculture ponds. It was not clear to the team if such pesticides would be detected in the sampling program described.

Strengths:

- A well developed and functioning nationally executed residues and contaminants control programme;

Weaknesses:

- Risk of a non-representative sample for various farmed species and production systems;
- Pesticide residue detection for local consumed fish raised in ponds exposed to agriculture runoff is unlikely;
- Considering the evidence on traceability of fishery products described in CC12B, a recall would be very challenging;

-
- Absence of controls on local and municipal approved establishments;
 - Veterinary medicinal product (VMP) treatment records are not required to be kept at farm level and there are no official controls concerning the use of VMP's on farms.

Recommendations:

- Review sampling strategies to guarantee representativeness of the program;
- Apply the program to all products, including agricultural pesticides, even for local market;
- Institute controls on the sale and usage of VMP's through on-farm and Veterinary practice record keeping.

II-11. Aquatic animal feed safety	Levels of advancement
<i>The authority and capability of the VS or AAHS to regulate aquatic animal feed safety e.g. processing, handling, storage, distribution and use of both commercial and on-farm produced aquatic animal feed and feed ingredients.</i>	1. The VS or AAHS cannot regulate aquatic animal feed safety.
	2. The VS or AAHS have some capability to exercise regulatory and administrative control over aquatic animal feed safety.
	3. The VS or AAHS exercise regulatory and administrative control for most aspects of aquatic animal feed safety.
	4. The VS or AAHS exercise comprehensive and effective regulatory and administrative control of aquatic animal feed safety.
	5. The control systems are regularly audited, tested and updated when necessary.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L23, PP3, E39

Findings:

Note: During the mission only a feed mill producing aquatic animal feed for self-consumption was visited. The information presented was collected through presentations and discussion with responsible MAPA animal feed inspection services (Departamento de Fiscalizacao de Insumos Pecuarios, DFIP).

Animal feed production controls and importation checks are the responsibility of MAPA that has a clear regulatory framework (Law no. 6.198 of 1974 and Decree no. 6.296 of 2007) and implements an inspection program to registered production and storage facilities. All animal feed establishments are approved at federal level. Controls are based on a program of self-control, good manufacturing practices, laboratory analysis and onsite inspection, which periodicity depends on the volume of production, production of medicated feed, etc.

Although it may not be commonplace, it is clear that on-farm production of fish feeds for same farm use receives very little regulatory oversight. The same level of low oversight appears to apply to local market use when aquatic animal feeds remain in the same state area, which is likely the most common pathway for feeds produced.

In the cases when aquatic feed has been imported, MAP was consulted by MAPA and an assessment of potential risks for AAH performed. Oversight of fish meal imports for use in aquatic animal feeds was not covered during this visit.

Strengths:

- Legislation is in place for aquatic animal feed production and use.

Weaknesses:

- Most feed stays close to the production origin and so there is less regulatory oversight or monitoring of use.

Recommendations

- Develop and document a risk-based inspection process for aquatic animal feed production facilities;
- Conduct an IRA for animal stock feed and bait.

Table 23: Number of veterinarian inspectors working in animal feed by state

UF	FFAs working in animal feed by state			Total UF
	100%	50%	Eventual	
AC		1		1
AL		1		1
AM		2		2
BA	3	1		4
CE	4	5	7	16
DF	10	1		11
ES	2			2
GO	3	2	3	8
MA	2			2
MG	12	1	5	18
MS	4	4		8
MT	1	1		2
PA	1			1
PB	2			2
PE	2			2
PI	1			1
PR	6	3	1	10
RJ	3	3		6
RN	1			1
RO	1	1		2
RR		1		1
RS	7	1	4	12
SC	7	1	1	9
SE			1	1
SP	4	5	7	16
TO	1			1
TOTAL	77	34	29	140

II-12. Traceability	Levels of advancement
A. Aquatic animal movement control <i>The authority and capability of the VS or AAHS, normally in coordination with producers and other interested parties, to trace their history, location and movement for the purpose of aquatic animal disease control, food safety, or trade.</i>	1. The VS or AAHS do not have the authority or the capability to trace aquatic animals or control their movements.
	2. The VS or AAHS can trace some aquatic animals and control some movements, using traditional methods and/or actions designed and implemented to deal with a specific problem.
	3. The VS or AAHS implement procedures for aquatic animal traceability and movement control for specific aquatic animal subpopulations as required for disease control, in accordance with relevant international standards.
	4. The VS or AAHS implement all relevant aquatic animal traceability and movement control procedures, in accordance with relevant international standards.
	5. The VS or AAHS carry out periodic audits of the effectiveness of their traceability and movement control systems.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E4, L7, L8, E10

Findings:

A system using an Animal Movement Permit (GTA) is imposed for transportation of animals and was established nationally in 2006 for all food animals, more recently (2011) for aquatic animals. GTA's are potentially linked to a national database to identify farmers, but most states are not fully integrated into the national system. There are minimal health or production records involved, since in many instances, the farm is registered just prior to harvest, which requires a permit for transport to market. Updating of the registry is done on the basis of declaration by the producer, theoretically at the time of stocking, but in reality usually done to obtain harvest permission. Although the traceability of live aquatic animals is the intention, the actual result is that the permits are providing traceability of animals after they are harvested i.e. unviable animals on ice going to a processing plant. State Veterinarians are responsible for farm registration, but usually a farmer comes to the registration office to provide self-declared information that is not verified and farm visits are only done to get geographic coordinates. No inspection of animal populations occurs and Veterinarians responsible generally have little or no aquatic animal health training.

The registration form has space for descriptions of incoming and outgoing water pathways, but this information is often missing or unverified. Sharing of water between farms or the recording of other farm influents are not covered by this system and so would be of little use in an investigation of potential disease exposures or escapes.

There are no official visits by state Veterinarians to hatcheries, nor is there any traceability or official record of animal movements from hatchery to grow out sites.

There are regulations in place for movement of animals derived from the fishery. However, the team observed oysters in the market that were mislabelled (as a marketing tactic) regarding their origin.

Mollusc traceability in Santa Catarina (the state with the most mollusc production in Brazil) is done through GTA, but this is usually missing if consumption occurs locally. Harvest area closures due to excessive biotoxin levels will block a GTA permit from being issued. However, the GTA is actually issued when animals arrive at the processing plant, which is then too late to prevent harvest. Electronic (or phone) alerts are being developed.

Strengths:

- GTA permit system is very useful for aquatic animal movement traceability using a national database shared with terrestrial animal movement controls;
- Many aquatic animal farms are registered, particularly those that require permits to harvest and send to a processing plant.

Weaknesses:

- GTA is currently only applicable to movements to another location at harvest and thus overlooks situations in which processing is done on-site;
- Traceability of live aquatic animal movements between hatcheries or between sites is lacking;
- Population characteristics, growing conditions, record of influents (e.g. food, water, equipment, people), or health details are generally lacking in the GTA system applied to aquatic animals;
- Disease investigations or control involving potential for exposures between live aquatic animal populations is not possible based on any official record systems currently in place.

Recommendations:

- Incorporate more comprehensive aquatic animal movement records into the GTA, including all animal life stages;
- Register all aquaculture facilities and require compulsory movement record keeping;
- Implement risk-based inspections to verify aquatic animal population characteristics and animal movements.

B. Traceability of products of aquatic animal origin	Levels of advancement
<i>The authority and capability of the VS or AAHS, normally in coordination with producers and other interested parties, to trace products of aquatic animal origin for the purpose of food safety, aquatic animal health or trade.</i>	1. The VS or AAHS do not have the authority or the capability to trace products of aquatic animal origin.
	2. The VS or AAHS can trace some products of aquatic animal origin to deal with a specific problem (e.g. products originating from farms affected by a disease outbreak).
	3. The VS or AAHS have implemented procedures to trace some products of aquatic animal origin for food safety, aquatic animal health and trade purposes, in accordance with relevant international standards.
	4. The VS or AAHS have implemented national programmes enabling them the tracing of all products of aquatic animal origin, in accordance with relevant international standards.
	5. The VS or AAHS periodically audit the effectiveness of their traceability procedures.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, PP8, L6, L14, E13, E18, E19, E74

Findings:

Products derived from aquatic animals were not clearly traceable except through the GTA permissions at harvest in the case of aquaculture AA. The authorization for harvest includes the number, weight and species of fish harvested, as well as the name of the buyer, but not the approved establishment where it will be processed or packed.

The request of GTA's for harvested fish is not applied in a similar way across states; such measure will only be enforced in 2017 with the implementation of IN 4 of 4.02.2015. An investigation using fiscal records could be attempted, but this would be difficult to access in many situations and unreliable in other cases.

Labelling of animal origin products is regulated by a federal legislation. Identification of the product name, the producer and packing establishment, the official inspection stamp indicating the category of the establishment (SIF, SIE or SIM), the location of the establishment, and the weight of the product. In addition for fishery products, it is requested that the conditions for preservation of the product be applied to packaging and the indication "not edible" in the case of sub-products not for human consumption.

No indication of harvest or farm of origin is requested. Aquatic products from catch fisheries are made available to consumers without clear indication of fishing vessel, landing site or fishing area.

Cases of fraudulent labelling are observed with some frequency. Traceability of product is insufficient and if necessary a recall could be done based on fiscal notes, but it would be very challenging.

Strengths:

- GTA provides some accountability to trace aquatic animal products after harvest in some, but not all situations;
- Labels of products indicate processing establishment of origin.

Weaknesses:

- There is no evidence of a documented system or involvement of the CA in aquatic animal product traceability.

Recommendations:

Develop national policy on traceability to facilitate consistency across regions within the country and across products derived from aquatic animals, addressing compliance with international standards, and improving consumer protection and confidence in aquatic animal products.

II-13. Welfare of farmed fish	Levels of advancement
<i>The authority and capability of the VS or AAHS to implement the OIE standards for the welfare of farmed fish as published in the Aquatic Code.</i>	1. There is no national legislation on welfare of farmed fish.
	2. There is national welfare of farmed fish legislation for some sectors.
	3. In conformity with OIE standards welfare of farmed fish is implemented for some sectors (e.g. for the export sector).
	4. Welfare of farmed fish is implemented in conformity with all relevant OIE standards.
	5. Welfare of farmed fish is implemented in conformity with all relevant OIE standards and programmes are subjected to regular audits.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L20, E11, E84

Findings:

There is no national legislation on Welfare of Farmed Fish. Aspects related with welfare on transport and slaughter has been included on guidelines for the development of HACCP control systems of establishments authorized for processing aquaculture products. Guidelines on transport of live crustaceans (crab) were developed by MPA. Fish and crustaceans from aquaculture are harvested and placed in ice/water mixtures and killed by suffocation. The producers are not aware of the impact of good welfare on quality and safety of fishery products.

Transport of live fish is done in water tanks, but no evidence was found on any controls performed by the authorities on water quality or densities of AA's during transport. A manual of good practices for the handling and good welfare of ornamental fish was produced in 2013 by the MPA. MAPA has a team working on animal welfare, but so far no activities were developed in relation to aquatic animals. The CA's are aware of the OIE standards and the need to develop and enforce legislation on this aspect.

Strengths:

- The CA's (MPA and MAPA) are aware of the OIE standards and the need to develop and enforce legislation on this aspect.

Weaknesses:

- Lack of national legislation.

Recommendations:

- To develop research on effective methods for AA stunning and killing methods for national species for use in production systems;
- Educate and promote awareness of fish welfare issues with fish farmers. For example; as part of a GMP manual for aquaculture.

III.3 Fundamental component III: Interaction with interested parties

This component of the evaluation concerns the capability of the VS or AAHS to collaborate with and involve interested parties in the implementation of programmes and activities. It comprises eight critical competencies

Critical competencies:

Section III-1	Communication
Section III-2	Consultation with interested parties
Section III-3	Official representation
Section III-4	Accreditation / Authorisation / Delegation
Section III-5	Veterinary Statutory Body (VSB) and other professional authorities
	A. VSB authority
	B. VSB capacity
	C. Other professional authorities
Section III-6	Participation of producers and other interested parties in joint programmes

Aquatic Code Reference(s):

Points 6, 7, 9, and 13 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards / Communication.

Chapter 3.2. on Communication.

Terrestrial Code Reference(s):

Point 9 of Article 3.2.1. on General considerations.

Points 2 and 7 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.

Sub-point b) of Point 2 of Article 3.2.6. on Administrative resources: Communications.

Article 3.2.11. on Participation on OIE activities.

Article 3.2.12. on Evaluation of the Veterinary statutory body.

Points 4, 7 and Sub-point g) of Point 9 of Article 3.2.14. on Administration details / Animal health and Veterinary public health controls / Sources of independent scientific expertise.

III-1. Communication	Levels of advancement
<p><i>The capability of the VS or AAHS to keep interested parties informed, in a transparent, effective and timely manner, of VS or AAHS activities and programmes, and of developments in aquatic animal health and food safety.</i></p> <p><i>This competency includes collaboration with relevant authorities, including other ministries and Competent Authorities, national agencies and decentralised institutions that share authority or have mutual interest in relevant areas</i></p>	1. The VS or AAHS have no mechanism in place to inform interested parties of VS or AAHS activities and programmes.
	2. The VS or AAHS have informal communication mechanisms.
	3. The VS or AAHS maintain an official contact point for communication but it is not always up-to-date in providing information.
	4. The VS or AAHS contact point for communication provides up-to-date information, accessible via the Internet and other appropriate channels, on activities and programmes.
	5. The VS or AAHS have a well-developed communication plan, and actively and regularly circulate information to interested parties.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP2, PP12, PP13, PP15, PP17, E15, E16, E18, E19, E20, E31, E47, E84

Findings:

The government has a general policy of openness and transparency; however, communication between authorities and interested parties is challenging in a country as large and diverse as Brazil.

Meetings are held with representatives of the aquaculture producers association, ornamental industry and fisheries to discuss current issues and plans for the future both in a formal and informal manner. Meetings are also frequent between the MPA and MAPA various services. The service agreement between the MPA and MAPA includes a clause that gives access to both ministries to all records, registers, reports, etc. Contact and exchange of information between the MPA and the MoH and the Ministry of Environment is much less frequent. Communication with other agencies both at federal and state level, include contact with the support agency to micro and small enterprises at the state of Minas Gerais (Serviço de Apoio as Micro e Pequenas Empresas, SEBRAE) for support and training of small aquaculture producers and fishermen.

The CGSAP participates in various working groups (WG) with representatives of other ministries such as the WG on research, development and innovation and the committee for preparation of the national prevention and control of antimicrobial resistance plan.

At state level, it was possible to verify frequent communication between SIF and the SVS, the state producers and industry associations, but no contact with municipal authorities.

The MPA has a comprehensive and updated website where information regarding its various programs, templates, forms and statistical information is readily available in Portuguese and even some translated into English. The communication plan both in the areas of food safety and animal health as well as across the various administrative levels is well developed and the services actively and regularly circulate information to interested parties and make information publicly available through their websites. Frequently asked questions and contact points are available. At state level, updated websites and information contact points are available for the majority if not all of the AAHS activities; for example, information on results of the shellfish monitoring program are available on the CIDASC website⁹.

Leaflets informing about the future AAH programs, disease fact sheets as well as certificates for AA transport are available. Generally the Veterinarians at those SVS's have little or no knowledge on AAH, including the list of notifiable diseases.

⁹ <http://www.cidasc.sc.gov.br/defesasanimariaanimal/resultado-de-analise-microbiologica/>

Strengths:

- Willingness to collaborate with stakeholders;
- Well developed and updated websites.

Weaknesses:

- Lack of collaboration between SVS's and the municipal level;
- Lack of information about Veterinarians working directly with aquaculture sector.

Recommendations:

- Promote better information and training of Veterinarians and producers regarding AAH in particular to improve the capability of early detection and reporting of emerging diseases. For example; Require compulsory mortality record keeping, sample collection and submission as part of farm registration requirements and produce a national endemic/exotic aquatic animal disease field guide;
- Promote improvement of communication pathways between SVS's and municipal authorities.

III-2. Consultation with interested parties	Levels of advancement
<p><i>The capability of the VS or AAHS to consult effectively with interested parties on VS or AAHS activities and programmes, and on developments in aquatic animal health and food safety.</i></p> <p><i>This competency includes collaboration with relevant authorities, including other ministries and Competent Authorities, national agencies and decentralised institutions that share authority or have mutual interest in relevant areas</i></p>	1. The VS or AAHS have no mechanisms for consultation with interested parties.
	2. The VS or AAHS maintain informal channels of consultation with interested parties.
	3. The VS or AAHS maintain a formal consultation mechanism with interested parties.
	4. The VS or AAHS regularly hold workshops and meetings with interested parties.
	5. The VS or AAHS actively consult with and solicit feedback from interested parties regarding proposed and current activities and programmes, developments in aquatic animal health and food safety, interventions at the OIE (Codex Alimentarius Commission and WTO SPS Committee where applicable), and ways to improve their activities.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L21, PP2, PP8, PP12, PP13, E14

Findings:

The aquaculture production sector is organised in two national associations, the Shrimp Farmers Association (Associação Brasileira de Criadores de camarão, ABCC) and the Fish Farmers Association (Peixe, BR). The ornamental sector is represented by the Brazilian Association of Ornamentals (Associação Brasileira de Lojas de Aquarofilia, ABLA). The fisheries sector is represented by several professional associations that represent fishermen and the fishing boat owners and industry. There is no national association for mollusc farmers". AMASI is the Local Association of Shellfish Farmers of the south part of Florianópolis, Santa Catarina

(https://www.facebook.com/amasimaricultores/?hc_ref=PAGES_TIMELINE)

These organizations have a membership representative of their sector and develop activities not just in communication with authorities, but also training, including production and AAH aspects, and in some cases professional technical consultation services.

Peixe BR represent 45% of national production (264,000t) and 60% of feed industry (450,000t). ABLA represent retailers, fish farm breeders, livestock importers and exporters, wholesalers and distributors. ABCC represents 2000 producers, of which 90% are small producers, and 23000 ha of active production area. The shrimp farmers are also associated in local and state associations.

Aquaculture farmers associations did not place AAH as a first priority instead showed concern that excessive regulatory requirements as the ones proposed in the Normative may compromise the growth of the sector which in their view already suffers from complicated environmental authorization processes. Peixe BR main goals are to support the development of fish farming and improve market competitiveness.

The aquaculture and fisheries sectors are represented at the Confederation of Agriculture and Livestock of Brazil (Confederação Nacional de Agricultura, CNA). The aquatic sector is very small in comparison with other livestock production sectors and some of the CNA initiatives, such as emergency funding, do not cover AA's. However, some actions are already in place, such as education on AAH through the national rural learning service (SENAR) or through the integration of the registry of aquatic farms to the Agricultural Management Platform (AMP). The CNA is represented in various international organizations such as, OIE, SVC, CODEX, MERCOSUR.

The MPA during its operation period 2009-15 conducted a policy of active communication with stakeholder organizations. Many visits from the MPA officials were conducted, including the Minister, who gave the sector a prominent role. The National Council for Fisheries and Aquaculture (CONAPE) was created in 2003 as a consultative body. The objective of

CONAPE is to propose public policies and promote coordination between the various public administration levels and the organized civil society. CONAPE is composed by 27 different government institutions and 27 stakeholders, including the confederation of fishermen, CONEPE, ABCC, and Peixe BR). There are no representatives of anglers or wild ornamental fishermen. CONAPE members have a two year mandate and the assembly meets four times per year. The CONAPE operates in various WG's that support legislative drafting and implementation measures. One WG deals specifically with aquatic sanitary issues. The CONAPE has an executive secretary from MPA staff. All documentation relative to the functioning of CONAPE is available in the web at; <http://www.mpa.gov.br/conape>.

Strengths:

- The legislative process in Brazil prescribes compulsory public consultation on any new legislation;
- The existence of a multidisciplinary consultative body with wide representation of all related stakeholders.

Weaknesses:

- The low representation of small/family farmers on producers associations and the absence of mechanisms for consultation of these stakeholders.

Recommendations:

- To maintain and further develop the structures created by MPA for consultation.

III-3. Official representation	Levels of advancement
<i>The capability of the VS or AAHS to regularly and actively participate in, coordinate and provide follow-up on relevant meetings of regional and international organisations including the OIE (and Codex Alimentarius Commission and WTO SPS Committee where applicable).</i>	1. The VS or AAHS do not participate in or follow up on relevant meetings of regional or international organisations.
	2. The VS or AAHS sporadically participate in relevant meetings and/or make a limited contribution.
	3. The VS or AAHS actively participate ¹⁰ in the majority of relevant meetings.
	4. The VS or AAHS consult with interested parties and take into consideration their opinions in providing papers and making interventions in relevant meetings.
	5. The VS or AAHS consult with interested parties to ensure that strategic issues are identified, to provide leadership and to ensure coordination among national delegations as part of their participation in relevant meetings.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6):E50

Findings:

Brazil is one of the largest animal origin products exporters in the world; therefore it is of no surprise the interest and importance that the country gives to representation on international organizations. The aquaculture and fisheries sector is proportionally very small; however, an AAH focal point (AQUACEN Director) was nominated and MPA actively participates in, coordinates and provides follow up on relevant meetings of OIE regional and global events. The MPA is also represented at OIE general sessions (although not in 2015 due to delays in the administrative approval process) and actively participates in providing comments to the Aquatic Code Commission. The CGSAP also provides support to MAPA on relevant issues concerning food safety aspects under CAC and WTO matters.

MPA participates in programs supported by FAO on sustainable development for fisheries and aquaculture.

Interested parties are consulted where appropriate and participation of the private sector is supported. The delegation to the OIE general sessions includes CNA.

Strengths:

- Regular participation in meetings and activities organised by the OIE and other international and regional organisations;

Weaknesses:

- The relatively small importance of the sector in the country and the absence of exports may compromise political will to finance and encourage international representation.

Recommendations:

- To develop a consultation process with interested parties for identification of issues to be addressed in international forum;
- The federal authorities should commit to regular participation in international and regional organisations with secure, multiple year funding.

¹⁰ *Active participation* refers to preparation in advance of, and contributing during the meetings in question, including exploring common solutions and generating proposals and compromises for possible adoption.

III-4. Accreditation / authorisation / delegation	Levels of advancement
<i>The authority and capability of the public sector of the VS or AAHS to accredit / authorise / delegate the private sector (e.g. private Veterinarians, aquatic animal health professionals and laboratories), to carry out official tasks on its behalf.</i>	1. The public sector of the VS or AAHS has neither the authority nor the capability to accredit / authorise / delegate the private sector to carry out official tasks.
	2. The public sector of the VS or AAHS has the authority and capability to accredit / authorise / delegate to the private sector, but there are no current accreditation / authorisation / delegation activities.
	3. The public sector of the VS or AAHS develops accreditation / authorisation / delegation programmes for certain tasks, but these are not routinely reviewed.
	4. The public sector of the VS or AAHS develops and implements accreditation / authorisation / delegation programmes, and these are routinely reviewed.
	5. The public sector of the VS or AAHS carries out audits of its accreditation / authorisation / delegation programmes, in order to maintain the trust of their trading partners and interested parties.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6):L9

Findings:

The legislative framework gives authority to the VS to delegate certain tasks to private Veterinarians. Issuing of GTA's can be done by private Veterinarians. In some states a "validation" request is in place. While in others, GTA's can be issued by farm owners.

Accreditation of private laboratories is also possible under the generic legislation, but the opportunity has not been taken up by AAH laboratories.

Subcontracting has also been used by CGSAP and SVS as a way to ensure technical and scientific support to certain functions, examples are; the contract with AQUAEPI for supporting the development of AAH surveillance and risk analysis; and hiring a company for collection of samples for active surveillance of marine biotoxins in Santa Catarina.

Strengths:

- The AAHS have the authority and procedures in place for the delegation of official tasks.

Weaknesses:

- Although the procedures are in place for delegation the absence of adequately trained Veterinarians in AAH makes it less effective. Training schemes and delegation procedures vary across states;
- Possible conflict of interests could hamper the credibility of official delegation when such delegation is given to Veterinarians employed as technicians responsible for the farms and establishments;
- Subcontracting is dependent on the availability of operational funds and an economic crisis may compromise the future of such programs.

Recommendations:

- Promote training and continuous education that can support the development of the sector by giving access to professionals trained in AAH;
- To develop a system for auditing and validation of delegated tasks;
- To ensure the sustainability of programs beyond current contacts with external providers.

III-5. Veterinary Statutory Body (VSB) and other professional authorities A. VSB authority <i>The VSB is an autonomous regulatory body for Veterinarians. Its role is defined in the Terrestrial Code.</i>	Levels of advancement
	1. There is no legislation establishing a VSB.
	2. The VSB regulates Veterinarians only within certain sectors of the Veterinary profession and/or does not systematically apply disciplinary measures.
	3. The VSB regulates Veterinarians in all relevant sectors of the Veterinary profession and applies disciplinary measures.
	4. The VSB regulates functions and competencies of Veterinarians in all relevant sectors and Veterinary para-professionals according to needs.
	5. The VSB regulates and applies disciplinary measures to Veterinarians and Veterinary para-professionals in all sectors throughout the country.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP6, <http://portal.cfmv.gov.br/portal/>

Findings:

The Brazilian Veterinary Statutory Body (VSB) System has regional (state) statutory bodies and a federal body. The Federal Council of Veterinary Medicine (Conselho Federal de Medicina Veterinária, CFMV) was created in 1968 (Law 5.517) and provides for the regulation of all public and private sector Veterinarians in Brazil that must be registered in order to engage in professional activities. The CFMV has responsibilities for minimum standards of education, setting standards of professional conduct and competence, investigating complaints, and the application of disciplinary procedures.

The CFMV objectives are to fiscalize the professional exercise of the veterinarian and animal husbandry professionals. Veterinary para-professionals (technicians) cannot be registered.

The CFMV has registered a total number of 104,393 Veterinarians. Information regarding its fields of activity and in particular those working in AAH is not available.

The same law that created the CFMV also defines the exclusive competencies of the Veterinarians and those include all inspection activities of products of animal origin including aquatic products and medical care; for example, prescription of Veterinary medicines. The IN 4 of 4/2/2015 that created the Brazilian national health program for AA's gives such competencies to a different category of animal health specialists, which is not defined as "profissional legalmente habilitado". The CFMV have presented a complaint to the Ministry against this legal provision claiming it is a contradiction in law, and lacks a definition of the habilitation competencies.

The VSB is an autonomous regulatory body and oversees the quality and competence of Veterinarians. However the VSB views in the definition of day 1 competencies for Veterinarians has not been taken by the Ministry of Education (ME) that regulates the authorisation of public and private Veterinary schools. Between 2002 to 2005 the CFMV held "National Professional Certification Examinations" these were interrupted by judicial decision. The CFMV considers it as very unfortunate that these examinations, which assessed the competency of graduating Veterinarians, were stopped. A system of evaluation of the curriculum and functionality of Veterinary universities is in place under the supervision of the ME.

Currently there are 227 (there were 208 in February 2014 at the time of The OIE PVS Follow-up) state and private Veterinary medicine universities. The curriculum taught by the various universities must respect the minimal competency requirements established by the ME, but there are significant differences. A few universities include the teaching of AAH within the various disciplines, others provide training as an optional subject, while others do not offer any training.

The VSB does not establish any requirements of continuous education for registered professionals.

The CFMV develops activities through various committees, one of which is responsible for emerging areas of activity such as AAH.

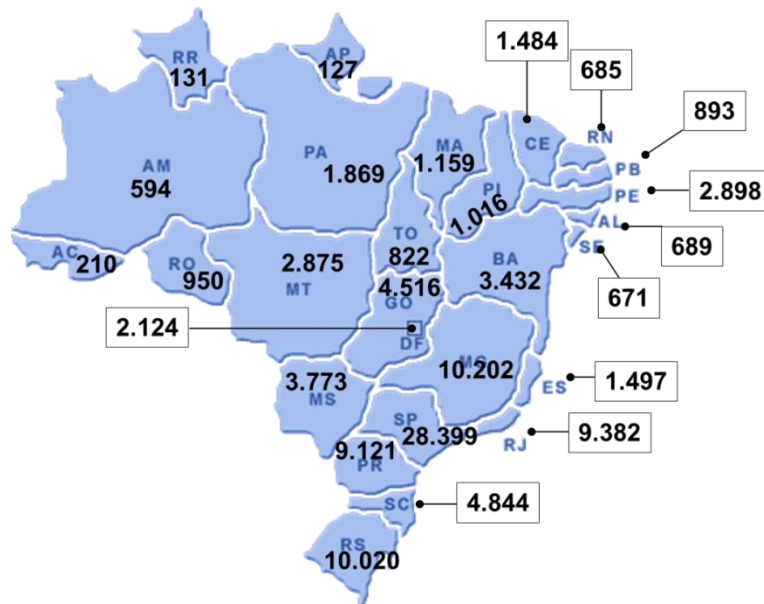


Figure 23: Total number of Veterinarians registered in the CFMV – 104,393

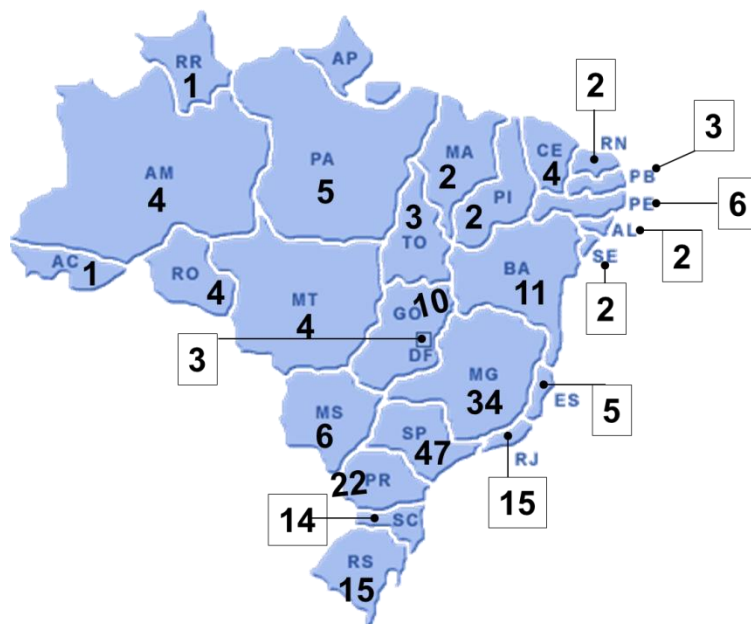


Figure 24: Total number of Veterinary universities - 227

Strengths:

- A well-organized Veterinary statutory body is present in Brazil. All Veterinarians must be registered to perform its activities;
- The VSB has a strategic plan to develop/promote new areas of activity for Veterinarians including AAH;
- The VSB is consulted and provides advice regarding AAH policies.

Weaknesses:

- The VSB does not regulate the activities of Veterinary para-professionals and does not seem to have any intention to promote or be involved in the regulation of these activities;
- The VSB does not have authority regarding the quality of Veterinary training offered by the VEE's in Brazil;
- The VSB does not promote continuous education of its registered members.

Recommendations:

- Promote training of Veterinarians at graduate and postgraduate level, including continuous education in the area of AAH;
- Establish requirements for continuous education of registered Veterinarians to support scientific and technical development;
- The high number of private and public VEE's and the increasing number of graduating Veterinarians without a thorough day-1 competency assessment may have a detrimental impact on the Veterinary system in Brazil. Political will and close cooperation between all institutions involved, such as the Ministry of Education and the CFMV, is needed to find acceptable solutions within the legal framework of Brazil.

B. VSB capacity	Levels of advancement
<i>The capacity of the VSB to implement its functions and objectives in conformity with OIE standards.</i>	1. The VSB has no capacity to implement its functions and objectives.
	2. The VSB has the functional capacity to implement its main objectives.
	3. The VSB is an independent representative organisation with the functional capacity to implement all of its objectives.
	4. The VSB has a transparent process of decision making and conforms to OIE standards.
	5. The financial and institutional management of the VSB is submitted to external auditing.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP6, <http://portal.cfmv.gov.br/portal/>

Findings:

Note: During the mission only the federal council was interviewed. The structure and organization of the CRMV were described in PVS Brazil Follow-up Report 2014.

The structure and organization of the VSB System in Brazil is based on one federal council (CFMV) and 27 state (Regional) councils (CRMV). It includes an elective process at state level where all Veterinarians are obliged to vote. The CFMV is elected by CRMV members. The Board of Directors of the CFMV and the CRMV's are constituted by 16 elected members, including: a president, vice-president, secretary, treasurer, six acting and six alternate members. Term of office is three years and they are non-paid positions. No CRMV was interviewed or visited during the mission. The CFMV and CRMV's have disciplinary bodies, but it was not clear during the mission the capacity to implement sanctions or reporting/acting on cases of malpractice.

Resources for CRMV's are obtained through the annual, compulsory membership registration. To support of the CFMV, the CRMV's contribute 25% of their annual income.

The CFMV has adopted a strategic multi-annual plan, has an elected board of directors, and a clear attribution of responsibilities to its various commissions. Budget and accounts are published on the CFMV website.

Strengths:

- Sound administration and secure financial resources.

Weaknesses:

- Inability to evaluate the competence (day-1) of graduating Veterinarians;
- Absence of compulsory continuous education for registered Veterinarians;
- Absence of competencies for Veterinary para-professionals.

Recommendations:

- The CFMV and CRMV's should establish the necessary rules and procedures to provide for the effective supervision by Veterinarians of all Veterinary para-professionals depending on activities performed;
- Day 1 competencies should be standardised and assessed for all Veterinarians registered to practice.

C. Other professional authorities	Levels of advancement
<i>Other professional authorities with the responsibility, authority and capacity for the regulation of aquatic animal health professionals.</i>	1. There is no legislation establishing other professional authorities and no capacity to implement its functions and objectives.
	2. The other professional authority has functional capacity to implement its main objectives. It regulates aquatic animal health professionals within certain sectors of the AAH profession and/or does not systematically apply disciplinary measures.
	3. The other professional authority is an independent representative organisation with the functional capacity to implement all of its objectives. It regulates aquatic animal health professionals within all aquatic animal health sectors and applies disciplinary measures.
	4. The other professional authority has a transparent process of decision making. It regulates functions and competencies of aquatic animal health professionals in all relevant sectors according to needs.
	5. The other professional authority's financial and institution management is submitted to external auditing. It regulates and applies disciplinary measures to aquatic animal health professionals in all sectors throughout the country.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E6

Findings:

There is no legislation establishing an organization with responsibilities for the regulation of the AAHP's other than Veterinarians and no proposal to address this matter.

The Brazilian association of aquaculture and aquatic biology (AQUABIO), <http://www.aquabio.com.br/apresentacao>, is a society representing the scientific and academic community, but does not have a specific role in AAH.

Strengths:

Weaknesses:

Recommendations:

- To evaluate the role of other professional authorities in AAH and create conditions for an effective collaboration.

III-6. Participation of producers and other interested parties in joint programmes	Levels of advancement
<p><i>The capability of the VS or AAHS and producers and interested parties to formulate and implement joint programmes in regard to aquatic animal health and food safety.</i></p> <p><i>This competency includes collaboration with relevant authorities, including other ministries and Competent Authorities, national agencies and decentralised institutions that share authority or have mutual interest in relevant areas</i></p>	1. Producers and other interested parties only comply and do not actively participate in programmes.
	2. Producers and other interested parties are informed of programmes and assist the VS or AAHS to deliver the programme in the field.
	3. Producers and other interested parties are trained to participate in programmes and advise of needed improvements, and participate in early detection of diseases.
	4. Representatives of producers and other interested parties negotiate with the VS or AAHS on the organisation and delivery of programmes.
	5. Producers and other interested parties are formally organised to participate in developing programmes in close collaboration with the VS or AAHS.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): E6, PP12, PP13, E14, E42, L2

Findings:

The MAPA and MPA signed an agreement in 2010 for technical cooperation where the responsibilities for the development and implementation of AAH programs were delegated to the MPA. The agreement was prorogued in February 2014. After the extinction of the MPA in October 2015 the reintegration of the CGSAP functions in MAPA was announced, but the exact structure is not yet known. Programs in AAH are at a very early stage of development. The following are the on-going or to-be-implemented programs:

- National Program for Monitoring of Tilapia Fingerlings Plan for Monitoring Juvenile Aquatic Animals
- National Program of Sanitary Control of Fisheries Vessels and Landing Infrastructure
- National Program for Hygienic and Sanitary Control of Bivalve Molluscs (being implemented in the state of Santa Catarina)
- National Program for Monitoring of Antibiotic Resistance in Fish
- National Program for Aquatic Animal Health

The IN 4 of 4/2/2015 that creates the National Program for Aquatic Animal Health will be implemented in 2017. The implementation delay is partly due to resistance by producers against the regulatory proposals, and partly due to the need to further develop infrastructure, such as the laboratory network and state level services. The MPA has established a plan for collaboration with the states for implementation of the measures proposed in AAH. At the time of the PVS mission 18 agreements were in progress and several proposals for new agreements were being prepared. The agreements are different between states, but may include; the training of staff at state level; the registry of all fish farms in the state with GPS coordinates; the implementation of a passive surveillance system; the control of fish movements and emission of GTA; and the provision of sanitary inspection to landing sites, etc. Only 2 of 18 agreements have been signed and received a budget from the federal government.

The MPA has good relations with the Brazilian Aquaculture Research Corporation (EMBRAPA) and supports the definition of future research priorities. A workshop was organised in 2013 with the objective of aquatic animal production and health. The EMBRAPA has a research network (10 centres) in the area of AAH, with expertise mainly in parasitology.

RENAQUA and the fish pathology laboratory AQUACEN are based at the University of Minas Gerais, LAQUA at the Superior Education Institute of Itajai and AQUAEPI are a consortium

formed by the federal Veterinary universities of Sao Paulo and Brasilia. Relations with other university research centres were not mentioned.

So far, and contrary to the situation regarding terrestrial animal health, the participation of the aquatic animal producers in joint programmes is limited. The capacity and interest of the private sector is not be disregarded as the MPA tries to involve producer associations in its activities as much as possible. Aquatic animal movements and data regarding farm registration will also be incorporated in the agricultural management platform, which is a initiative of the Confederation of Agriculture and Livestock of Brazil (CNA).

Strengths:

- Agreements between state Veterinary authorities and the CGSAP have been formulated for the implementation of AAH;
- Agreements exist between academic and research institutions and MPA.

Weaknesses:

- Resistance of producers to facilitate and support the implementation of AAH programs;
- Funding for program implementation exists, but only 2 of 18 have received financing.

Recommendations:

- Provide appropriated resources and incentives for state programs to ensure that long-term AAH objectives and a sustainable development of the aquatic sector is achieved;
- Promote further relations with academic and research institutions that can support the activities of implementation of the AAH program by supporting the CA's with knowledge and expertise.

III.4 Fundamental component IV: Access to markets

This component of the evaluation concerns the authority and capability of the VS or AAHS to provide support in order to access, expand and retain regional and international markets for animals and animal products. It comprises eight critical competencies.

Critical competencies:

Section IV-1	Preparation of legislation and regulations
Section IV-2	Implementation of legislation and regulations and compliance thereof
Section IV-3	International harmonisation
Section IV-4	International certification
Section IV-5	Equivalence and other types of sanitary agreements
Section IV-6	Transparency
Section IV-7	Zoning
Section IV-8	Compartmentalisation

Aquatic Code Reference(s):

Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
 Chapter 4.1. on Zoning and compartmentalisation.
 Chapter 4.2. on Application of compartmentalisation.
 Chapter 5.1. on General obligations related to certification.
 Chapter 5.2. on Certification procedures.
 Article 2.1.2. on The Agreement on the Application of Sanitary and Phytosanitary Measures and role and responsibility of the OIE.
 Chapter 5.10. on Model health certificates for international trade in live aquatic animals and products of aquatic animal origin.

Terrestrial Code Reference(s):

Points 1 and 2 of Article 3.2.7. on Legislation and functional capabilities: Animal health, animal welfare and Veterinary public health / Export/import inspection.
 Points 1 and 3 of Article 3.2.8. on Animal health controls: Animal health status / National animal disease reporting systems.
 Sub-point g) of Point 4 of Article 3.2.10. on Veterinary Services administration: Trade performance history.
 Article 3.2.11. on Participation in OIE activities.
 Points 6 and 10 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities / Membership of the OIE.

IV-1. Preparation of legislation and regulations	Levels of advancement
<p><i>The authority and capability of the VS or AAHS to actively participate in the preparation of national legislation and regulations in domains that are under their mandate, in order to guarantee its quality with respect to principles of legal drafting and legal issues (internal quality) and its accessibility, acceptability, and technical, social and economical applicability (external quality).</i></p> <p><i>This competency includes collaboration with relevant authorities, including other ministries and Competent Authorities, national agencies and decentralised institutions that share authority or have mutual interest in relevant areas</i></p>	1. The VS or AAHS have neither the authority nor the capability to participate in the preparation of national legislation and regulations, which result in legislation that is lacking or is out-dated or of poor quality in most fields of VS or AAHS activity.
	2. The VS or AAHS have the authority and the capability to participate in the preparation of national legislation and regulations and can largely ensure their internal quality, but the legislation and regulations are often lacking in external quality.
	3. The VS or AAHS have the authority and the capability to participate in the preparation of national legislation and regulations, with adequate internal and external quality in some fields of activity, but lack formal methodology to develop adequate national legislation and regulations regularly in all domains.
	4. The VS or AAHS have the authority and the capability to participate in the preparation of national legislation and regulations, with a relevant formal methodology to ensure adequate internal and external quality, involving participation of interested parties in most fields of activity.
	5. The VS or AAHS regularly evaluate and update their legislation and regulations to maintain relevance to evolving national and international contexts.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, L28, L29, E30, E31, E32

Findings:

Brazilian legislation for the Veterinary domain is extensive and covers all relevant areas; animal health, animal movement control, Veterinary public health, authorisation and control of VMP's, residue control, animal feed and border control of animals and food of animal origin. Under the agreement of 2010 between MPA and MAPA the legislative initiatives concerning AAH became the responsibility of MPA. MPA has developed an important work on the preparation of legislation and regulations for AAH. Fifteen different Normative Acts were developed and adopted between 2010 and 2015 covering different animal and public health aspects related to AA. Criteria for disease listing and risk analysis are available as well as a regulatory framework for laboratory and epidemiological support. Legislation preparation includes a public consultation website (consultas publicas: available at www.agricultura.gov.br/legislacao/consultas-publicas)

The regulatory framework in relation to IRA's, import and export certification, and monitoring/control of diseases is in conformity with the OIE standards.

Formal consultation is conducted with relevant private and government stakeholders, and legal service advice is used for drafting. The CONAPE (see CC III-2) is the main consultative body and specific WG's and committees are involved in the preparation of legislation. During the mission the team has observed evidence of less formal consultation with the various producers associations.

Production, distribution and sale of aquatic animal product is regulated and procedures for registration, inspection and monitoring of establishments and products are available.

Strengths:

- The AAHS have an extensive legislation base providing a solid framework concerning the programs, plans and interventions in all areas of competence;
- There is a legal base for the inspection and safety of aquatic animal products, including provisions on microbiological quality and freedom from residues of chemicals and drugs;
- MPA and MAPA have the technical capacity to propose, discuss and update legislation;
- The consultation process is well established.

Weaknesses:

- The differences between state level legislation can lead to additional complications and delays on the implementation of AAH policies;
- The absence of structured impact assessment methodology when developing legislation.

Recommendations:

- To develop procedures for impact assessment and external quality review of proposed legislation.

IV-2. Implementation of legislation and regulations and compliance thereof <i>The authority and capability of the VS or AAHS to ensure compliance with legislation and regulations under the VS or AAHS mandate.</i>	Levels of advancement
	1. The VS or AAHS have no or very limited programmes or activities to ensure compliance with relevant legislation and regulations.
	2. The VS or AAHS implement a programme or activities comprising inspection and verification of compliance with legislation and regulations and recording instances of non-compliance, but generally cannot or do not take further action in most relevant fields of activity.
	3. Relevant legislation is generally implemented. As required, the VS or AAHS have a power to take legal action / initiate prosecution in instances of non-compliance in most relevant fields of activity.
	4. Relevant legislation is implemented in all domains of competence and the VS or AAHS work to minimise instances of non-compliance.
	5. The compliance programme is regularly subjected to audit by the VS or AAHS or external agencies.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2, E10, E11, E46, E49

Findings:

Until October 2015 the CGSAP were responsible at the federal level for developing AAH legislation, AAH programs and international certification standards, coordination, review, and providing continued policy advice for these activities. The implementation of the legislation and its enforcement is the responsibility of the SVS, as MPA does not have a body of federal agents working in the field. The LVU at each state are responsible for the coordination and execution of activities at local level, having several municipals under their area of competence.

The implementation of AAH programs is at a very early stage. The National Program for Hygienic and Sanitary Control of Bivalve Molluscs, which has been implemented by the Santa Catarina Veterinary Services (Integrated Company for the Development of Agriculture in Santa Catarina, CIDASC) since 2011, is the more developed. As for this program, the team can verify the adequate capacity of the VS to ensure legislation implementation, but sample collection was outsourced to an external provider. Another case of the activities of the SVS in the implementation of AAH policies is quarantine control (ornamental and aquaculture). Activities of farm registration, currently being developed, are based on self-declaration and no on farm checks are made. The implementation of all programs covered by the NA no 4 from 4/2/2015 will be extremely challenging due to the lack of sufficient number of trained Veterinarians or other professionals. The CGSAP has prepared a large number of instruction manuals to facilitate the implementation.

The fish and fishery products authorization and inspection services, as previously explained, is made at federal, state or local level. At federal level (the one observed during the mission), the legislative provisions and human technical means are available for adequate implementation and enforcement. Evidence was observed of actions in the case of non-compliance and cases of delay in following up recommended actions. The number of Veterinary inspectors and their level of training is reduced and the frequency of inspections is not always risk based.

Controls on the sanitary conditions of fishing vessels or landing sites, with exception of two TTP's already in operation, are not implemented.

Strengths:

- Adequate regulatory framework that provides authority for enforcement and action of non-compliance;
- The Veterinary authorities are organized at federal, state, and local municipal level allowing for good contact with production units.

Weaknesses:

- Control mechanisms to ensure implementation of legislation are not in place in all cases;
- Audit of the activities of SIF have not been done since 2011;
- Veterinarians are largely unaware of notifiable aquatic animal diseases;
- Public is unaware of hygienic sanitary requirements for fish and fishery products (traceability requirements).

Recommendations:

- Start training officials at state level to implement the National Aquatic Health Program including the familiarization with procedure manuals;
- Increase numbers of Veterinarians responsible to implement the AAH activities;
- Implement regular auditing and verification of official activities;
- Improve coordination between inspection done on farm or landing and on processing establishments;
- Promote education programmes at national and state levels, including the sanitary measures covered by legislation, to ensure consumer education improves compliance.

IV-3. International harmonisation	Levels of advancement
<i>The authority and capability of the VS or AAHS to be active in the international harmonisation of regulations and sanitary measures and to ensure that the national legislation and regulations under their mandate take account of relevant international standards, as appropriate.</i>	1. National legislation, regulations and sanitary measures under the mandate of the VS or AAHS do not take account of international standards.
	2. The VS or AAHS are aware of gaps, inconsistencies or non-conformities in national legislation, regulations and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems.
	3. The VS or AAHS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations.
	4. The VS or AAHS are active in reviewing and commenting on the draft standards of relevant intergovernmental organisations.
	5. The VS or AAHS actively and regularly participate at the international level in the formulation, negotiation and adoption of international standards ¹¹ , and use the standards to harmonise national legislation, regulations and sanitary measures.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6):L27, E18

Findings:

The CGSAP actively participates in international activities with OIE, SPS and MERCOSUR regarding issues related with AAH. The MAPA/DSA responsible for managing the Animal Health Services all over Brazil has a very active role with the international bodies, which is easy to understand considering the country's importance as a main exporter of products of animal origin.

OIE focal points have been nominated for all responsibilities including AAH. The authorities are aware of international requirements. Resources are allocated to international cooperation activities, although last year MPA participation at the OIE general session was not possible.

Strengths:

- Experts, actively involved in the activities developed by the international setting bodies, including active focal point representatives;
- The willingness and capacity to integrate international requirements to national legislation.

Weaknesses:

- The less importance given to international standard compliance since production is focused on the internal market;
- Low interest and involvement of producers.

Recommendations:

- Maintain and prioritise engagement with international organisations (notably the OIE and CAC) to influence international standards and negotiations and ensure export capacity.

¹¹ A country could be active in international standard setting without actively pursuing national changes. The importance of this element is to promote national change.

IV-4. International certification ¹²	Levels of advancement
<i>The authority and capability of the VS or AAHS to certify aquatic animals, aquatic animal products, services and processes under their mandate, in accordance with the national legislation and regulations, and international standards.</i>	1. The VS or AAHS have neither the authority nor the capability to certify aquatic animals, aquatic animal products, services or processes.
	2. The VS or AAHS have the authority to certify certain aquatic animals, aquatic animal products, services and processes, but are not always in compliance with the national legislation and regulations and international standards.
	3. The VS or AAHS develop and carry out certification programmes for certain aquatic animals, aquatic animal products, services and processes under their mandate in compliance with international standards.
	4. The VS or AAHS develop and carry out all relevant certification programmes for any aquatic animals, aquatic animal products, services and processes under their mandate in compliance with international standards.
	5. The VS or AAHS carry out audits of their certification programmes, in order to maintain national and international confidence in their system.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): PP4, E38

Findings:

The regulatory framework concerning food safety is well developed and updated to international standards. There are official certification programs in place for exports of animals and food of animal origin.

Exports of live fish are mainly exports of ornamental fish, although Brazil has also previously exported aquaculture species such as tilapia fingerlings to Angola for fattening; tilapia fingerlings to Ivory Coast for reproduction, amphibians and shrimp larvae to the United States of America. As for other live animals, the procedure starts by the issuing an Animal Movement Permit (GTA) and confirmation that all the animal health requirements are met at the place of origin.

All Veterinary requirements and model certificates for different importing countries are available on an online system (SISREC). The main exporting states are Belem, Manaus and Espirito Santo. Specific training for official Veterinary inspectors on AAH focusing on ornamental fish certification occurred in 2004 and was repeated in 2009. The health certificate by the responsible veterinarian (private veterinarian) certifies that the fish are clinically healthy and without ectoparasites and or other AA diseases at the time of the clinical examination. On the basis of this certificate, a list of the species, and number of fish to be exported, the official veterinarian issues the authorization for the issuing of the international zoosanitary certificate. Health certificates do not have indication of the place of origin or if fish are wild caught or farmed.

Fishery products processed at 82 SIF officially controlled establishments, under the control of Department of Inspection of Products of Animal Origin (Departamento de Inspeção de Produtos de Origem Animal, DIPOA) can be exported.

The inspection system is based on international standards and requirements by importing countries. Memorandums of Understanding were developed with Norway, Argentina, Uruguay, Chile, Ecuador and Peru. The fisheries and aquaculture sector have been oriented to the national market and the exports are for the moment very low, if production increases and exchange rates are more favourable for exports Brazil has the necessary certification and procedures for export in place, but would have to implement AAH programs that are in accordance with international standards.

¹² Certification procedures should be based on relevant OIE and Codex Alimentarius standards.

Strengths:

- All relevant procedures are developed to ensure certification in conformity with international standards and the importing requirements.

Weaknesses:

- The limited resources to ensure inspection and certification of products of aquatic origin.

Recommendations:

- If export markets grow, it will be necessary to recruit staff to the animal health and food safety departments, including for laboratories, to support inspection, testing and certification of export consignments;
- Ensure the GTA system is fully implemented for AA's as a requirement of farm registration.

IV-5. Equivalence and other types of sanitary agreements <i>The authority and capability of the VS or AAHS to negotiate, implement and maintain equivalence and other types of sanitary agreements with trading partners.</i>	Levels of advancement
	1. The VS or AAHS have neither the authority nor the capability to negotiate or approve equivalence or other types of sanitary agreements with other countries.
	2. The VS or AAHS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented.
	3. The VS or AAHS have implemented equivalence and other types of sanitary agreements with trading partners on selected aquatic animals, aquatic animal products and processes.
	4. The VS or AAHS actively pursue the development, implementation and maintenance of equivalence and other types of sanitary agreements with trading partners on all matters relevant to aquatic animals, aquatic animal products and processes under their mandate.
	5. The VS or AAHS actively work with interested parties and take account of developments in international standards, in pursuing equivalence and other types of sanitary agreements with trading partners.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6):

Findings:

The CA (MPA/MAPA) has a strong history of legal frameworks to negotiate agreements with other federal departments and with their counterparts in the SVS. Negotiation with international trading partners is based on OIE and other applicable standards. Conditions for trade of aquatic animal products are arranged through bilateral negotiations. The VS works with various stakeholders (e.g. exporters) to re-evaluate and improve negotiated agreements between parties.

Strengths:

- The CA has full authority and capabilities to negotiate with relevant parties;
- The CA develops implements and maintains equivalence of sanitary agreements with trading partners.

Weaknesses:

- Although not expected to change overall effectiveness, there remains some unknown factors that may influence future authority under a new department (MAPA).

Recommendations:

- Continue to invest authority in the CA to negotiate and maintain equivalence and sanitary agreements with trading partners.

IV-6. Transparency	Levels of advancement
<i>The authority and capability of the VS to notify the OIE of their sanitary status and other relevant matters (and to notify the WTO SPS Committee where applicable), in accordance with established procedures.</i>	1. The VS do not notify.
	2. The VS occasionally notify.
	3. The VS notify in compliance with the procedures established by these organisations.
	4. The VS regularly informs interested parties of changes in their regulations and decisions on the control of relevant diseases and of the country's sanitary status, and of changes in the regulations and sanitary status of other countries.
	5. The VS, in cooperation with their interested parties, carry out audits of their transparency procedures.

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6):L2

Findings:

International obligations and standards are well known by the CA. Prompt notification of all relevant information related to sanitary status is performed by the CA using established procedures. A responsible level of transparency is maintained to provide access to export markets. Although the known sanitary status is notified to international trading partners, the primary issue is that Brazil is a large country with a domestic focus for its aquaculture market resulting in substantial gaps in the AAHS capable of providing federal reporting of disease events at the local level.

Strengths:

- All relevant international organisations are notified of known changes in aquatic animal disease status by the CA using appropriate procedures and timely updates.

Weaknesses:

- Disease events may occur at the local level without the state or federal VS being aware. These information gaps create a challenge for international reporting obligations.

Recommendations:

- Strengthen the disease event information gathering capabilities (passive surveillance) and communications pathways between producers and local and state VS. For example; mandatory AA GTA, mortality reporting and a system that records both submission and results should be considered to be phased in as part of the planned registration process;
- Enhance effectiveness of passive surveillance of local and state VS and communication pathways to federal authorities.

IV-7. Zoning <i>The authority and capability of the VS or AAHS to establish and maintain disease free zones, as necessary and in accordance with the criteria established by the OIE (and by the WTO SPS Agreement where applicable).</i>	Levels of advancement
	1. The VS or AAHS cannot establish disease free zones. ¹³
	2. As necessary, the VS or AAHS can identify aquatic animal sub-populations with distinct health status suitable for zoning.
	3. The VS or AAHS have implemented biosecurity measures that enable it to establish and maintain disease free zones for selected aquatic animals and aquatic animal products, as necessary.
	4. The VS or AAHS collaborate with producers and other interested parties to define responsibilities and execute actions that enable it to establish and maintain disease free zones for selected aquatic animals and aquatic animal products, as necessary.
	5. The VS or AAHS can demonstrate the scientific basis for any disease free zones and can gain recognition by trading partners that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable).

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2

Findings:

The disease status for most of aquatic animal populations is unknown and supporting, fundamental AAHS are non-existent or rudimentary at best. For example; since there are few opportunities for effective passive surveillance due to the lack of reporting for significant mortality events in aquatic animal populations and no active surveillance programs, zoning for diseases is not a realistic option.

Zoning is not applicable at this stage.

Strengths:

- GTA has some potential to expand in support of a passive surveillance program.

Weaknesses:

- Local species that are not farmed in other countries and endemic disease occurrence is largely unknown and unreported. This restricts the potential to manage pathogens in local aquatic animal populations.

Recommendations:

- As a foundation for future planning of possible disease zonation, facilitate applied health research to understand (and quantify) risk of pathogen transmission and clinical disease expression in aquatic animal species raised in Brazil;
- Implementation of effective AAHS will allow for the collection of the information required for future long-term strategic planning for zoning. Therefore, the recommendation here is to consider the possibility of zoning in long-term strategic plans and only commence projects once the evidence has been gathered to support and justify the need for zoning.

¹³ If the VS or AAHS has the authority and capability but chooses not to implement zoning, this CC should be recorded as "not applicable at this stage".

IV-8. Compartmentalisation	Levels of advancement
<i>The authority and capability of the VS or AAHS to establish and maintain disease free compartments as necessary and in accordance with the criteria established by the OIE (and by the WTO SPS Agreement where applicable).</i>	1. The VS or AAHS cannot establish disease free compartments. ¹⁴
	2. As necessary, the VS or AAHS can identify aquatic animal sub-populations with a distinct health status suitable for compartmentalisation.
	3. The VS or AAHS ensure that biosecurity measures to be implemented to enable it to establish and maintain disease free compartments for selected aquatic animals and aquatic animal products, as necessary.
	4. The VS or AAHS collaborate with producers and other interested parties to define responsibilities and execute actions that enable it to establish and maintain disease free compartments for selected aquatic animals and aquatic animal products, as necessary.
	5. The VS or AAHS can demonstrate the scientific basis for any disease free compartments and can gain recognition by other countries that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable).

Terrestrial and Aquatic Code reference(s): Annexe 1

Evidence (listed in Appendix 6): L2

Findings:

Most situations in aquatic animal production in Brazil are not amenable to instituting or maintaining disease free compartments. However, if there were appropriate oversight and diagnostic surveillance to establish pathogen freedom, it is conceivable that some companies would invest in a closed containment system amenable to a compartment, such as a white spot virus free shrimp facility.

Strengths:

- Diagnostic capacity within RENAQUA and epidemiology advice from universities could support the intensity of testing required to establish pathogen free status within a subpopulation or facility.

Weaknesses:

- Financial incentive and access to pathogen free juveniles is a limiting factor.

Recommendations:

- Establish the regulatory framework and criteria necessary for compartmentalisation potential for some priority diseases.

¹⁴ If the VS or AAHS has the authority and capability but chooses not to implement compartmentalization, this CC should be recorded as "not applicable at this stage".

PART IV: CONCLUSIONS

The AAHS of Brazil are currently undergoing reorganization. Since its creation in 2009 until its extinction in October 2015, the competencies for development and implementation of AAH policies were delegated from MAPA to MPA.

Aquatic Animal Health policies were included in a series of measures to develop Brazilian potential for aquatic animal production aiming at transforming Brazil into a large producer at the global level. Ambitious targets for aquaculture production were set by the government, and the term “blue revolution” was used to describe the strategy. Sustainable aquaculture development was set as a priority and AAH was considered an integral component.

At the federal level, the structure in place was the general coordination of AAH (CGSAP) composed of a very small team located at the Ministry headquarters in Brasilia. The team had responsibilities to develop the regulatory framework, coordinate activities at the state level, including field actions and laboratorial support, ensure harmonization with international standards, communicate and consult with interested stakeholders, and support activities on the area of food safety. The implementation of AAH programs is based on the structure available for other animal species and includes SVS's organised in three different administrative levels (state, region, and municipality).

The creation of the MPA gave relevance to the sector and made some important achievements possible in the area of AAH. A comprehensive set of regulations in conformity with international standards was adopted, a laboratory network to support diagnosis was created, and links with international partners and national research centres were established. Most importantly, financing was ensured to establish agreements for implementation of the programs at state level. The extinction of MPA and reintegration with MAPA will be a challenge, but also an opportunity. Human and financial resources need to be made available for the continued success of programs and the existing MAPA structure will need to provide the necessary organizational framework. The risk is that no additional resources will be made available and AAH will be given lower priority as a production sector with limited export potential.

Aquaculture production is rapidly expanding in Brazil under the mandate of the government. Activity is mainly based on freshwater native species, of which knowledge about husbandry and health aspects is very limited. It is important that growth is supported by responsible production, scientific development, and an appropriate monitoring and surveillance program. At the moment, the number of competent AAHP's is disproportionate to the challenges faced by expanding production.

Regarding Veterinary public health, the focus has been on establishments capable of selling between states or for export. Although equal standards are to be applied to all facilities, the team noted the difficulties in establishing auditing and verification processes. Traceability of aquatic products and in particular of catch fisheries is not sufficient to achieve a real farm to fork system. Coordination with the Ministry of Health needs to be further developed.

The work of implementation of programs has just started and many competencies addressed by the PVS Tool are yet to be developed. Assured political and financial support is required if the ambition of developing a strong aquatic sector is to be fulfilled. Ensuring alignment with international standards is fundamental if increased exports are to be achieved.

Brazil is as large as a continent and more diverse than some continents. It is important to stress the limitations of this evaluation. This first OIE PVS Evaluation of the AAHS was able to observe the progresses done at federal level and in a small number of states and needs to be followed by a thorough assessment at state level. An internal PVS Evaluation of state and local services is highly recommended.

PART V: APPENDICES

Appendix 1: Terrestrial Code references for critical competencies

Critical Competences	Terrestrial Code references	Aquatic Code reference
I-1.A I-1.B I-2.A I-2.B	<p>Article 3.2.5. on Evaluation criteria for human resources.</p> <p>Article 3.2.12. on Evaluation of the Veterinary statutory body.</p> <p>Points 1-2 and 5 of Article 3.2.14. on Organisation and structure of Veterinary Services / National information on human resources / Laboratory services.</p>	<p>Points 1-7, 9 and 14 of Article 3.1.2. on Fundamental principles of quality: Professional judgement / Independence / Impartiality / Integrity / Objectivity / Aquatic animal health legislation and regulations / General organisation / Procedures and standards / Human and financial resources.</p>
I-3	<p>Article 3.2.5. on Evaluation criteria for human resources.</p> <p>Sub-point d) of Point 4 of Article 3.2.10. on Veterinary Services administration: In-service training and development programme for staff.</p> <p>Point 9 of Article 3.2.14. on Performance assessment and audit programmes.</p>	<p>Points 1, 7 and 14 of Article 3.1.2. on Fundamental principles of quality: Professional judgement / General organisation / Human and financial resources.</p>
I-4		<p>Point 2 of Article 3.1.2. on Fundamental principles of quality: Independence.</p>
I-5	<p>Point 1 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.</p> <p>Point 9 of Article 3.2.14. on Performance assessment and audit programmes.</p>	
I-6.A I-6.B	<p>Article 3.2.2. on Scope.</p> <p>Points 1 and 2 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.</p> <p>Point 4 of Article 3.2.10 on Performance assessment and audit programmes.</p>	<p>Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulation / General organisation / Procedures and standards.</p>
I-7	<p>Point 2 of Article 3.2.4. on Evaluation criteria for quality system: "Where the Veterinary Services undergoing evaluation... than on the resource and infrastructural components of the services".</p> <p>Points 2 and 3 of Article 3.2.6. on Evaluation criteria for material resources: Administrative / Technical.</p> <p>Point 3 of Article 3.2.10. on Performance assessment and audit programmes: Compliance.</p> <p>Point 4 of Article 3.2.14. on Administration details.</p>	
I-8 I-9 I-10	<p>Point 1 of Article 3.2.6. on Evaluation criteria for material resources: Financial.</p> <p>Point 3 of Article 3.2.14. on Financial management information.</p>	<p>Points 6 and 14 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / Human and financial resources.</p>
I-11	<p>Point 4 of Article 3.2.1. on General considerations.</p> <p>Point 1 of Article 3.2.2. on Scope.</p> <p>Article 3.2.6. on Evaluation criteria for material resources.</p> <p>Article 3.2.10. on Performance assessment and audit programmes</p>	<p>Points 7, 11 and 14 of Article 3.1.2. on Fundamental principles of quality: General organisation / Documentation / Human and financial resources.</p>
II-1.A II-1.B II-2	<p>Point 1 of Article 3.2.4. on Evaluation criteria for quality systems.</p> <p>Point 3 of Article 3.2.6. on Evaluation criteria for material resources: Technical.</p> <p>Point 5 of Article 3.2.14. on Laboratory services.</p>	<p>Point 9 of Article 3.1.2. on Fundamental principles of quality: Procedures and standards.</p>
II-3		<p>Section 2 on Risk analysis.</p>
II-4	<p>Point 2 of Article 3.2.7. on Legislation and functional capabilities: Export/import inspection.</p> <p>Points 6 and 7 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities / Animal health and Veterinary public health controls.</p>	<p>Points 6 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / Procedures and standards.</p>
II-5.A II-5.B II-6 II-7	<p>Points 1-3 of Article 3.2.8. on Animal health controls: Animal health status / Animal health control / National animal disease reporting systems.</p> <p>Sub-points a) i), ii) and iii) of Point 7 of Article 3.2.14. on Animal health: Description of and sample reference data from any national animal disease reporting system controlled and operated or</p>	<p>Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.</p> <p>Chapter 1.4. on Aquatic animal health surveillance.</p> <p>Chapter 4.6. on Handling, disposal and treatment of aquatic animal waste.</p>

	coordinated by the Veterinary Services / Description of and sample reference data from other national animal disease reporting systems controlled and operated by other organisations which make data and results available to Veterinary Services / Description and relevant data of current official control programmes including... or eradication programmes for specific diseases.	
II-8.A II-8.B	Points 1-5 of Article 3.2.9. on Veterinary public health controls: Food hygiene / Zoonoses / Chemical residue testing programmes / Veterinary medicines/ Integration between animal health controls and Veterinary public health. Points 2, 6 and 7 of Article 3.2.14. on National information on human resources / Veterinary legislation, regulations and functional capabilities / Animal health and Veterinary public health controls.	Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards. Codex Alimentarius Commission standards: General Principles of Food Hygiene (CAC/RCP 1-1969). Code of practice for fish and fishery products (CAC/RCP 52-2003).
II-9	Points 3 and 4 of Article 3.2.9. on Veterinary public health controls: Chemical residue testing programmes / Veterinary medicines. Sub-point a) ii) of Point 6 of Article 3.2.14.	Points 6 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / Procedures and standards. Chapter 6.2. on Introduction to the recommendations for controlling antimicrobial resistance. Chapter 6.3. on Principles for responsible and prudent use of antimicrobial agents in aquatic animals. Chapter 6.4. on Monitoring of the quantities and usage patterns of antimicrobial agents used in aquatic animals. Chapter 6.5. on Development and harmonisation of national antimicrobial resistance surveillance and monitoring programmes for aquatic animals.
II-10		Points 3 and 4 of Article 3.2.9. on Veterinary public health controls: Chemical residue testing programmes / Veterinary medicines. Sub-points b) iii) and iv) of Point 7 of Article 3.2.14. on Veterinary public health: Chemical residue testing programmes / Veterinary medicines.
II-11		Chapter 6.1. on Control of hazards in aquatic animal feed.
II-12.A II-12.B		Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
II-13		Chapter 7.1. on Introduction to recommendations for the welfare of farmed fish. Chapter 7.2. on Welfare of farmed fish during transport. Chapter 7.3. on Welfare aspects of stunning and killing of farmed fish for human consumption. Chapter 7.4. on Killing of farmed fish for disease control purposes.
III-1		Point 13 of Article 3.1.2. on Fundamental principles of quality: Communication. Chapter 3.2. on Communication Sub-point b) of Point 2 of Article 3.2.6. on Administrative resources: Communications. Point 4 of Article 3.2.14. on Administration details.
III-2	Point 2 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services. Point 4 and Sub-point g) of Point 9 of Article 3.2.14. on Administration details and on Sources of independent scientific expertise.	Point 13 of Article 3.1.2. on Fundamental principles of quality: Communication. Chapter 3.2. on Communication.
III-3	Article 3.2.11. on Participation on OIE activities. Point 4 of Article 3.2.14. on Administration details.	
III-4	Point 7 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.	Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
III-5.A III-5.B III-5.C	Point 6 of Article 3.1.2. on Fundamental principles of quality: Veterinary legislation. Point 9 of Article 3.2.1. on General considerations. Article 3.2.12. on Evaluation of the Veterinary statutory body.	Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
III-6	Points 2 and 7 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary	Points 6 and 13 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation

	Services. Point 7 of Article 3.2.14. on Animal health and Veterinary public health controls.	and regulations / Communication.
IV-1 IV-2	Points 1 and 2 of Article 3.2.7. on Legislation and functional capabilities: Animal health, animal welfare and Veterinary public health / Export/import inspection. Point 6 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities. Chapter 3.4.	Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards.
IV-3	Article 3.2.11. on Participation in OIE activities. Points 6 and 10 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities / Membership of the OIE.	Point 6 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations.
IV-4	Point 2 of Article 3.2.7. on Legislation and functional capabilities: Export/import inspection. Sub-point b) of Point 6 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities: Export/import inspection.	Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation / Procedures and standards. Chapter 5.2. on Certification procedures. Chapter 5.10. on Model health certificates for international trade in live aquatic animals and products of aquatic animal origin.
IV-5	Sub-point g) of Point 4 of Article 3.2.10. on Veterinary Services administration: Trade performance history.	Points 6 and 7 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations / General organisation. Article 2.1.2. on The Agreement on the Application of Sanitary and Phytosanitary Measures and role and responsibility of the OIE.
IV-6	Points 1 and 3 of Article 3.2.8. on Animal health controls: Animal health status / National animal disease reporting systems.	Point 6 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations. Chapter 5.1. on General obligations related to certification.
IV-7		Point 6 of Article 3.1.2. on Fundamental principles of quality: Aquatic animal health legislation and regulations. Chapter 4.1. on Zoning and compartmentalisation. Chapter 4.2. on Application of compartmentalisation.

Appendix 2: Glossary of terms

Terms defined in the Aquatic Animal Health Code that are used in this publication are reprinted here for ease of reference.

Aquatic Animal Health Services

means the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and recommendations in the Aquatic Code in the territory. The Aquatic Animal Health Services are under the overall control and direction of the Competent Authority. Private sector organisations, Veterinarians, aquatic animal health professionals or Veterinary paraprofessionals are normally accredited or approved by the Competent Authority to deliver the delegated functions.

Aquatic animal health status

means the status of a country, zone or compartment with respect to an aquatic animal disease, according to the criteria listed in the relevant chapter of the Aquatic Code dealing with the disease.

Aquatic animal products

means non-viable aquatic animals and products from aquatic animals.

Aquatic animals

means all life stages (including eggs and gametes) of fish, molluscs, crustaceans and amphibians originating from aquaculture establishments or removed from the wild, for farming purposes, for release into the environment, for human consumption or for ornamental purposes.

Aquatic Code

means the OIE Aquatic Animal Health Code.

Certifying official

means a person authorised by the Competent Authority to sign health certificates for aquatic animals.

Compartment

means one or more aquaculture establishments under a common biosecurity management system containing an aquatic animal population with a distinct health status with respect to a specific disease or diseases for which required surveillance and control measures are applied and basic biosecurity conditions are met for the purpose of international trade. Such compartments must be clearly documented by the Competent Authority(ies).

Competent Authority

means the Veterinary Authority or other Governmental Authority of a Member having the responsibility and competence for ensuring or supervising the implementation of aquatic animal health and welfare measures, international health certification and other standards and recommendations in the Aquatic Code in the whole territory.

Contingency plan

means a documented work plan designed to ensure that all needed actions, requirements and resources are provided in order to eradicate or bring under control outbreaks of specified diseases of aquatic animals.

Disease

means clinical or non-clinical infection with one or more aetiological agents.

Emerging disease

means a newly recognised infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognised pathogenic agent or a disease diagnosed for the first time and which has a significant impact on aquatic animal or public health

International aquatic animal health certificate

means a certificate, issued in conformity with the provisions of Chapter 5.10., describing the aquatic animal health and/or public health requirements that should be fulfilled prior to export of commodity.

Listed diseases

means diseases that are referred to in Chapter 1.3. of the Aquatic Code. (Synonym: diseases listed by the OIE.)

Notification

means the procedure by which:

- a) the Veterinary Authority informs the Headquarters,
- b) the Headquarters inform Veterinary Authorities of Members

of the occurrence of a disease, according to the provisions of Chapter 1.1. of the Aquatic Code.

Risk analysis

means the complete process composed of hazard identification, risk assessment, risk management and risk communication.

Risk management

means the process of identifying, selecting and implementing measures that can be applied to reduce the level of risk.

Sanitary measure

means a measure, such as those described in various chapters of the Aquatic Code, destined to protect aquatic animal or human health or life within the territory of the OIE Member from risks arising from the entry, establishment and/or spread of a hazard.

Surveillance

means a systematic series of investigations of a given population of aquatic animals to detect the occurrence of disease for control purposes, and which may involve testing samples of a population.

Terrestrial Code

means the OIE Terrestrial Animal Health Code.

Veterinarian

means a person registered or licensed by the relevant Veterinary statutory body of a country to practise Veterinary medicine/science in that country.

Veterinary Authority

means the Governmental Authority of an OIE Member, comprising Veterinarians, other professionals and para-professionals, having the responsibility and competence for ensuring or supervising the implementation of aquatic animal health and welfare

measures, international aquatic animal health certification and other standards and recommendations in the Aquatic Code in the whole territory.

Veterinary statutory body

means an autonomous authority regulating Veterinarians and Veterinary para-professionals.

Zone

means a portion of one or more countries comprising:

- a) an entire water catchment from the source of a waterway to the estuary or lake, or
- b) more than one water catchment, or
- c) part of a water catchment from the source of a waterway to a barrier that prevents the introduction of a specific disease or diseases, or
- d) part of a coastal area with a precise geographical delimitation, or
- e) an estuary with a precise geographical delimitation,

that consists of a contiguous hydrological system with a distinct health status with respect to a specific disease or diseases. The zones must be clearly documented (e.g. by a map or other precise locators such as GPS co-ordinates) by the Competent Authority(ies).

Appendix 3. List of persons met or interviewed

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10	Atilio	Lafayette	-
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Appendix 4: Timetable of the mission and sites/ facilities visited

	Date	State	City	Agenda	Competent Authority	Length
Day 0	Oct 18	DF	Brasília	Expert Team convenes, reviews data, methodology, key findings from previous PVS Pathway Missions and finalise the preparation of the Mission.		
Day 1	Oct 19	DF	Brasília	Courtesy visit to Minister and/or other senior staff		08:30-09:00
				Opening meeting with Headquarters staff and representatives of all interested parties	MPA	09:00-09:30
				Headquarters meeting: (CVO/Delegate and staff) - Discussion about documents sent before the Mission; selection of sites and the logistic arrangements for the Mission.	MAPA	09:30-10:00
					CONAPE	10:00-10:30
					<i>Coffee brake</i>	10:30-10:50
					CNA	10:50-11:20
					EMBRAPA	11:20-11:50
					<i>Lunch</i>	12:00-14:00
				Meeting with the Veterinary Statutory Body	CFMV	14:00-15:15
				National training facilities (initial and further training) including universities:	Discussion	15:15-15:45
				- For Veterinarians and aquatic animal health professionals (university qualification)	UnB/USP (AQUAEPi)	16:30-18:00
Day 2	Oct 20	MG	Belo Horizonte	GOL / BSB-CNF		08:55-10:06
				Visit to the Aquatic Animal Health Service (AAHS) at Minas Gerais - Instituto Mineiro de Agropecuária (IMA).	IMA	10.30-12.30
				Visit to the Central Laboratory (AQUACEN – Animal Health), of the National Reference Laboratory for Aquatic Animal Diseases (RENAQUA)	AQUACEN/RENAQUA	14.00-17.00
	Oct 20			GOL / CNF-NAT		19:28-22:26
Day 3	Oct 21	RN	Natal	Visit to the AAHS at Rio Grande do Norte - Instituto de Defesa e Inspeção Agropecuária (IDIARN)	IDIARN	7.30-9.00
				Field - marine shrimp farming / Shrimp Processing plant		9.00-14.00
		RN	Natal	Meeting with the national stakeholders ABCC (shrimp farming)	ABCC	15.30-17.00
	Oct 21			AVIANCA / NAT-GRU		19:00-23:30

Day 4	Oct 22	SP	São Paulo	BIPs where ornamental fish are shipped (export and import)	Guarulhos	
				Meeting with the national stakeholders ABLA (ornamental chain) and PeixesBR (fish farming).	ABLA, PeixesBR	14.00-15.30
				Visit to an aquatic animal quarantine unit for ornamental purpose		16.00-18.00
	Oct 22			GOL / CGH-FLN		21:40-22:49
Day 5	Oct 23	SC	Florianopolis	Visit to the AAHS at Santa Catarina - Companhia Integrada de Desenvolvimento Agrícola de Santa Catarina (CIDASC: Central and local service) and meeting with the Agricultural Research and Rural Extension Agency of Santa Catarina (EPAGRI)	CIDASC/ EPAGRI	8.00-10.00
				Field - bivalves molluscs farming and shellfish processing plant		10.00-13.00
				Travel to Itajai		14.30-16.00
Day 6	Oct 24	SC	Itajaí	Visit to the LAQUA – Itajaí (biotoxins) / RENAQUA	LAQUA - Itajai	16.00-18.00
				Field - Sale points for wild fishery products and fishing vessels		8.00-10.00
				Meeting with SINDIPI	SINDIPI	10.00-12.00
				Travel to Florianopolis		15.00-16.30
Day 7	Oct 25		Florianopolis	Day OFF		
	Oct 25			TAM / NAV-CGB		16:50-21:19
Day 8	Oct 26	MT	Cuiabá	Visit to the AAHS at Mato Grosso, the Instituto de Defesa Agropecuária do Estado de Mato Grosso (INDEA) - Central	INDEA	8.30-10.00
Day 9	Oct 27	MT		Visit to the AAHS at Mato Grosso, the Instituto de Defesa Agropecuária do Estado de Mato Grosso (INDEA) - Local		
				Field - fish farming (amazon's fish and pantanal fish) (Tambaqui - Colossoma macropomum/ Pintado - Pseudoplatystoma sp./ Pirarucu - Arapaima gigas)		
Day 10	Oct 28			AZUL / CGB-BSB		12.55-15.31
Day 11	Oct 29	DF	Brasília	Assessors' draft summary of preliminary findings		
Day 12	Oct 30			Closing meeting	MPA, MAPA	
				- Presentation and discussion of the summary of preliminary findings		

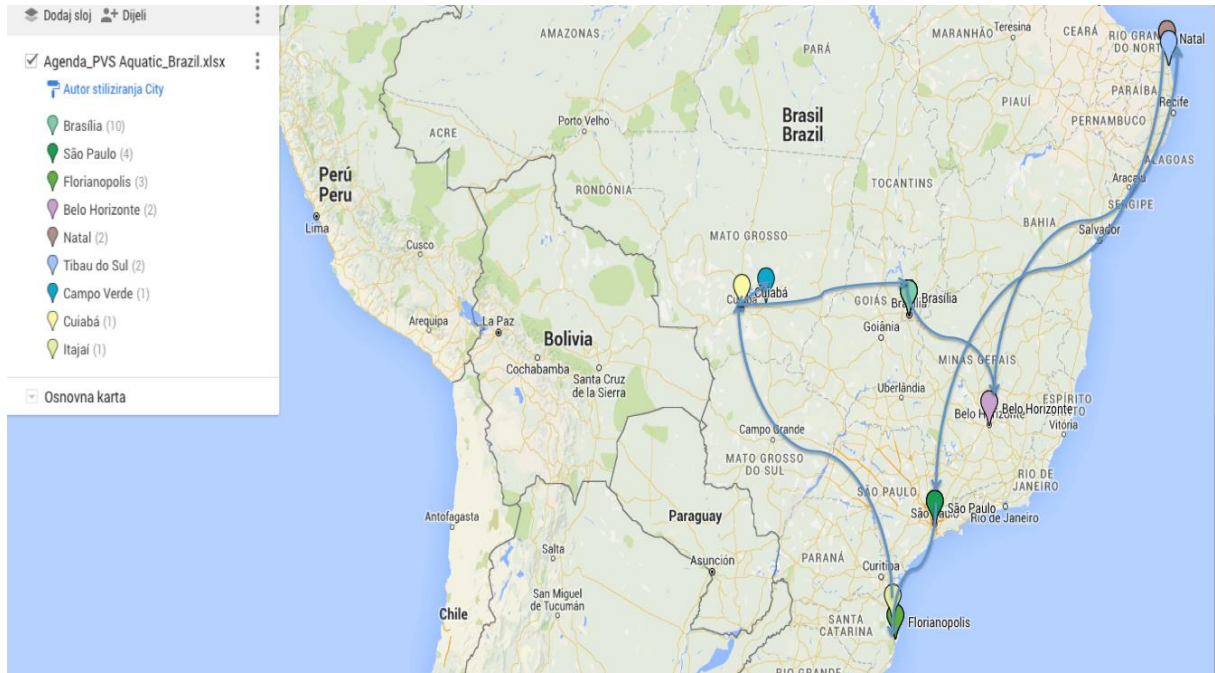


Figure 25; Sites visited

Appendix 5: Air travel itinerary

ASSESSOR	DATE	From	To	Flight No.	Departure	Arrival
Ana Afonso	17/10/15	BOLOGNA	LISBON	TP0871	12:30	14:30
	18/10/15	LISBON	BRASILIA	TP0059	9:35	16:15
	31/10/15	BRASILIA	LISBON	TP0058	18:55	06:05
	1/11/15	LISBON	MIILAN MALPENSA	TP0802	07:20	11:00
Niksa Barisic	17/10/15	ZAGREB	MUNICH	LH1715	16:35	17:40
	18/10/15	MUNICH	SAO PAULO GRU	LH0504	22:10	06:35
	18/10/15	SAO PAULO GRU	BRASILIA	LH7374	08:30	10:26
	31/10/15	BRASILIA	SAO PAULO GRU	LH7379	10:02	11:45
	31/10/15	SAO PAULO GRU	MUNICH	LH0505	19:00	09:50
	1/11/15	MUNICH	ZAGREB	LH1712	11:25	12:30
Larry Hammel	16/10/15	TORONTO, PEARSON INT'L	RIO DE JANEIRO, INT'L	AC098	23:10	10:25
	17/10/15	RIO DE JANEIRO, INT'L	BRASILIA	G31626	15:57	17:56
	31/10/15	BRASILIA	SAO PAULO, GUARULHOS INT'L	G31685	11:00	12:15
	31/10/15	SAO PAULO, GUARULHOS INT'L	TORONTO, PEARSON INT'L	AC091	22:35	06:25

Appendix 6: List of documents used in the PVS Evaluation of the AAHS

E = Electronic version PP= Power point presentations L=Legislation
H = Hard copy version P= Digital picture

Ref	Title	Author / Date / ISBN / Web	Related critical competences
PRE-MISSION DOCUMENTS			
E.1	2014 OIEPVS Follow up Report Brazil	http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/Brazil_OIE-PVS-final_261207.pdf	All parts
E.2	2013 OIE PVS Tool 1st Edition English	http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/pdf/A_PVS_Tool_aquatic_animals.pdf	All parts
E.3	FVO Report 2013-6850 - Evaluate the control of residues and contaminants in live animals and animal products including controls on Veterinary medicinal products - May 2013	http://ec.europa.eu/food/fvo/audit_reports/details.cfm?rep_id=3209	II 10
E.4	FVO Reports 2012-65- Fishery products - Feb-Mar 2012	http://ec.europa.eu/food/fvo/audit_reports/details.cfm?rep_id=2911	II 8, II 10, II 12
E.5	Ministry of Fisheries and Aquaculture	http://www.mpa.gov.br/aquicultura	All parts
E.6	EMBRAPA – Fisheries and aquaculture	https://www.embrapa.br/pesca-e-aquicultura	III 5
E.7	FAO National Aquaculture Sector Overview Brazil	http://www.fao.org/fishery/countrysector/naso_brazil/en	Introduction
E.8	O futuro da pesca e da aquicultura marinha no brasil: a maricultura	http://cienciaecultura.bvs.br/scielo.php?pid=S0009-67252010000300015&script=sci_arttext	Introduction
E.9	Balanco 2013- Pesca e Aquicultura	http://www.mpa.gov.br/files/docs/Publicidade/Cartilha-Balan%C3%A7o-2013-Minist%C3%A9rio-Pesca-Aquicultura.pdf	Introduction
LEGISLATION			
L.1	L1_IN nº 03 de 13.04.2012 - Institui a RENAQUA. Publicada em 18.04		II 1, II 2
L.2	L2_IN nº 4 de 4.2.2015 - Institui o Programa de Sanidade de Animais Aquáticos de Cultivo - Aquicultura com Sanidade. Publicado em 09-02-2015		Part II, III 6, IV 1, IV 6, IV 7, IV 8
L.3	L3_IN nº 10 de 11.07.2013 - Institui AquaEpi. Publicada em 12.07.2013.pdf		II 4, 5, 7
L.4	L4_IN nº 14 de 9.12.2010 - ARI - VERSÃO EM INGLÊS.pdf		II 3
L.5	L5_IN nº 14 de 9.12.2010 - ARI. Publicada em 10.12.2010.pdf		II 3
L.6	L6_IN nº 21 de 11.09.2014- Estabelece a Nota Fiscal Eletrônica. Publicado em 12.09.2014.doc		
L.7	L7_IN nº 22 de 11.09.2014 - Institui o Plano Nacional de Formas Jovens. Publicado em 12-09-2014.doc		II 12
L.8	L8_IN nº 23 de 11.09.2014. Determina a obrigatoriedade da GTA animais e materia prima. Publicado em 16.09.2014.doc		II 12
L.9	L9_IN nº 26 de 12.11.2014 -Habilitação de profissionais legalmente habilitados para coleta de amostras - RENAQUA. Publicada em 14.11.2014.doc		II 1, III 4

L.10	L10_IN nº 29 de 22.12.2014 - Institui o Programa Embarque Nessa - Publicada em 23.12.14.doc		II 8
L.11	L11_IN nº 30 de 30.12.2014 - Institui o Programa Nacional de Monitoramento de Resistência a Antimicrobianos em Recursos Pesqueiros. Publicado em 02.01.2015.doc		II 9, II 10
L.12	L12_INI nº 01 de 3.01.2012 - Explotacao peixes nativos exóticos águas continentais.pdf		
L.13	L13_INI nº 03 de 28.02.2012- MPA-MMA - Altera INI 01. Publicada em 29 02 2012		
L.14	L14_INI nº 04 de 30.05.2014- Estabelece a Nota Fiscal do pescado. Publicado em 02-06-2014.doc		II12
L.15	L15_INI nº 07 de 8.05.2012 - PNCMB. Publicada em 09.05.2012.doc		II 8
L.16	L16_INI nº 32 de 16.08.2013 - Importação de materiais pesquisa. Publicada em 19.08.2013		
L.17	L17_LEI Nº 11.959, DE 29 DE JUNHO DE 2009 Dispõe sobre a Política Nacional de Desenvolvimento Sustentável da Aquicultura e da Pesca, regula as atividades pesqueiras, revoga a Lei no 7.679, de 23 de novembro de 1988, e dispositivos do Decreto-Lei nº 221, de 28 de fevereiro de 1967, e dá outras providências.	http://www.mpa.gov.br/files/docs/Leis/2009/LEI%20N%C2%BA%2011959-09%20-%20Lei%20da%20Pesca%20e%20Aquicultura.pdf	I 5
L.18	L18_MPA IN 30 Resistance to Antimicrobials in Fishery Resources.pdf		II9, II10
L.19	L19_NORMATIVE INSTRUCTION SDA No 13, (July, 15) 2015.- Monitoring Subprogram and Exploratory Subprogram of the National Plan for the Control of Residues and Contaminants - PNCRC of 2015, for the chains of bovine, swine, caprine, ovine, equine, poultry, ostrich and rabbit meat, and the chains of milk, fisheries, honey and eggs	http://www.agricultura.gov.br/arg_editor/file/CRC/Normative%20Instruction%2013-2015%20-%20Brazil%20Residues%20Program%202015%20-%20PNCRC%20Animal.pdf	II10
L.20	L20- IN n de o9.2013 welfare transport crabs		II 13
L.21	L21- Port No 266 CONAPE		II2, III1
L.22	L22_ P. no. 178 MPA and State agreements		I1, I6, I8, I11
L.23	Legislação relacionada aos produtos de uso veterinário - Ministério da Agricultura, Pecuária e Abastecimento, Secretaria de defesa agropecuária Departamento de fiscalização de insumos pecuários 2012	http://www.agricultura.gov.br/arg_editor/file/Aniamal/leg_prod_veterinarios_WEB.pdf	II11
L.24	EMERGENCY FUNDS –Decree law 24548		I9, II6
L.25	EMERGENCY FUNDS –Decree law 5741		I9, II6
L.26	EMERGENCY FUNDS –Law 569		I9, II6
L.27	MPA - Port n. 19_2015 - Lista de doenças de notificação obrigatória para animais aquáticos.pdf		II3, II4, II5
L.28	Agriculture and animal production legislation- Legislacao Agro Pecuaria - Consulta	http://sistemasweb.agricultura.gov.br/sislegis/action/detalhaAto.do?method=abreLegislacaoFederal&chave=50674&tipoLegis=A	I5, IV1
L.29	Legislation list - Compilado de normativas		I5, IV1
L.30	Port. 368		II8
L.31	Port 46		II8
L.32	Bra 115748.pdf		

	MISSION DOCUMENTS		
PP.1	PP_20151019_1_OIE- PVS Opening	<i>Dr. A. Afonso & Team</i>	Introduction
PP.2	PP_20151019_2_CONAPE_MPA	CONAPE_MPA	III 1 , III2
PP.3	PP_20151019_3_DFIP	DFIP	II11
PP.4	PP_20151019_4_DIPES	DIPES	I1, I5, II4, II8
PP.5	PP_20151019_5_EMBRAPA	EMBRAPA	
PP.6	PP_20151019_6_CFMV	CFMV	I2, III5
PP.7	PP_20151019_7_MPA_Opening	MPA	I1, I6, I7, I11
PP.8	PP_20151019_8_CNA	CNA	I11, II8, III2, III5
PP.9	PP_20101520_1_IMA	IMA	I 6, I 7, I 8,II5, II 8A
PP.10	PP_20151020_2_RENAQUA	RENAQUA	II 1, II 2, I10
PP.11	PP_20151021_1_IDIARN - Rio Grande do Norte	IDIARN	I 6, I 7, I 8, II 8A
PP.12	PP_20151022_1_ABLA_ornamentais.	ABLA	III 1, III 2 and III 5
PP.13	PP_20151022_2_Peixe BR.	Peixe BR	III 1, III 2 and III 5
PP.14	PP_20151023_1_CIDASC	CIDASC	I 1, I2, I 7, I 8, I 9, III1
PP.15	PP_20151023_2_CIDASC_AAHS	CIDASC	I7, II 5
PP.16	PP_20151026_INDEA	INDEA	I8
PP.17	PP_20151026_CGSAP	CGSAP	I1, I2, I6, I7, I8, I11, II3, II5, III1
PP.18	PP_20151023_LAQUA	LAQUA	I10, II1, II8
E.10	2015-10-21 _traceability page 1 and page 2		II12
E.11	2015-10-21_inspection check list shrimp farm		II5
E.12	22-10-2015_GTA Quarantine		II4
E.13	27-10-2015_harvest certificate		II12
E.14	28-10-2015 ABCC magazine		III6
E.15	28-10-2015 GTA leaflet		III1
E.16	30-10-2015 AAH program leaflet		II5, III1
E.17	30-10-2015 moluscs control program leaflet		II8, III1
E.18	30-10-2015 moluscs international standards leaflet		Ii8, III1, IV3
E.19	30-10-2015 oyster labeling leaflet		II12, III1
E.20	30-10-2015 shrimp biosecurity leaflet		II7, III1
E.21	AGREEMENTS_Guidelines for drafting		I6, I7
E.22	AQUACEN_ number of tests by hosts and states		I6, I7

E.23	AQUACEN_ Ring rest conclusion 2015		II1
E.24	AQUACEN_Form for analysis		II2
E.25	AQUACEN_Manual for sample collection and dispatch		I3, II1
E.26	AQUACEN_number of tests by hosts and states		II1
E.27	AQUACEN_Ring rest conclusion 2013		II2
E.28	CNA_Explanation Emergency funds		I9
E.29	CONTINGENCY PLANS_ FAO consultant		II7
E.30	COOPERATION MAPA MPA_addendum		I6
E.31	COOPERATION MAPA MPA_agreement		I6, III1, IV1
E.32	COOPERATION MAPA MPA_extract act		I6
E.33	EDUCATION_ CGSAP query		I2
E.34	EDUCATION_Questionnaire		I2
E.35	EDUCATION_Table 1 courses		I2
E.36	EDUCATION_Table 2 research lines		I6
E.37	EMERGENCY FUNDS		I9
E.38	EXPORT_22-10-2015 documentation pg 1 -4		IV4
E.39	FEED_ Authorized feed establishments		II11
E.40	Folder _IMPORT_ Zoosanitary Requirements		II4
E.41	Folder _ Aquatic Animal Health Program IN 4-2015 and annexes		I6, I7, I8, I9, I11
E.42	Folder _ Aquatic Animal Health work plan agreements with states		I6, I7, I8, I9, I11, III6
E.43	Folder _ Harvest certificate CAMANOR		II8
E.44	Folder _27-10-2015_farm registration forms		II5
E.45	Folder _27-10-2015_Frigopesca		II8
E.46	Folder _27-10-2015_Frigopesca- condemnation		II8, IV2
E.47	Folder _27-10-2015_leaflet Laernea		III1
E.48	Folder_certificate_GTA shrimp products		II8
E.49	Folder Follow up _Inspection CAMANOR corrective actions		II8, IV2
E.50	Folder_International participation		III3
E.51	Folder_Continuing education		I3
E.52	FOOD SAFETY Manual de procedimento para implantacao de estabelecimentos de pescado		II8
E.53	FOOD_ Establishments approved SIF		II8
E.54	IMPORT_ Requirements animal feed		II4
E.55	IMPORT_ Requirements feed animal origin		II4
E.56	IMPORT_ Requirements food animal origin		II4

E.57	IMPORT_ Requirements live fish		II4
E.58	IMPORT_ Requirements vet medicine		II4
E.59	IMPORT_ Requisites for ornamental fish		II4
E.60	IMPORT_ template request import		II4
E.61	RESEARCH_ Aquaculture and fisheries		I6
E.62	RESEARCH_ EMBRAPA BNDES		I6
E.63	RESEARCH_ EMBRAPA priorities		I6
E.64	RESIDUES_ Normative instruction_2015 program		II10
E.65	RESIDUES_ Normative instruction_regulatory actions		II10
E.66	RESIDUES_ Normative instruction_results 2014		II10
E.67	RISK ANALYSIS_fertilizer		II3
E.68	RISK ANALYSIS_Inactivation methods		II3
E.69	RISK ANALYSIS_Shrimp_Panama		II3, I4
E.70	RISK ANALYSIS_technical note_cyprinids		II3
E.71	RISK ANALYSIS_Tilapia_EUA		II3
E.72	RISK ANALYSIS_Tuna_Spain		II3
E.73	STATISTICS_CENSO_IBGE		Introduction
E.74	TRACEABILITY_Labelling		II12
E.75	TRAINING Aquatic health		I3
E.76	TRAINING Aquatic health molluscs		I3
E.77	TRAINING attendance list mollusc		I3
E.78	TRAINING attendance list fish		I3
E.79	TRAINING Course sampling fish		I3
E.80	TRAINING Course sampling mollusc		I3
E.81	VMP_Authorized medicated feed		II9
E82	STATISTICS_CONEPE- Balanco Outubro 2015	http://www.conepe.org.br/images/pdf/estatisticas/bc_out2015.pdf	Introduction
E83	Non conformity SIF establishment		II 8
E84.	GT ornamentais – Manual de boas praticas de manejo e bem estar de peixes ornamentais amazonicos		II13, III1

Summary of data available for evaluation

Main Document Categories	Public Availability	
Aquatic Animal Census:		
at 1st administrative level	✓	
at 2 nd administrative level	✓	
at 3rd administrative level	✓	
per animal species	✓	
per production systems	✓	http://www.ibge.gov.br/home/estatistica/economia/ppm/2013/ (2013) or http://www.mpa.gov.br/monitoramento-e-controle/informacoes-e-estatisticas (Earlier)
Organisations Charts		
Central level of the VS/AAHS	✓	http://www.mpa.gov.br/institucional/estrutura (MPA) http://www.agricultura.gov.br/arg_editor/OrganogramaGeraMapa%2012_08_2015.pdf (MAPA)
2 nd level of the VS/AAHS	✓	http://www.ima.mg.gov.br/institucional/organograma (IMA) http://www.indea.mt.gov.br/institucional/organograma/ (INDEA-MT)
3 rd level of the VS/AAHS	No	
Job descriptions in the VS/AAHS		
Central levels of the VS/AAHS	No	
2 nd level of the VS/AAHS	No	
3 rd level of the VS/AAHS	No	
Legislations, Regulations, Decrees ...		
Aquatic animal health and public health	✓	http://portal.in.gov.br/ (National) http://www.mpa.gov.br/legislacao (MPA) http://www.agricultura.gov.br/legislacao (MAPA) http://portal.anvisa.gov.br/wps/portal/anvisa/anvisa/regulacaosanitaria (ANVISA - HEALTH)
Veterinary practice	✓	
Veterinary statutory body	✓	http://portal.cfmv.gov.br/portal/legislacao/index/secao/2 (CFMV)
Other professional authorities	✓	http://portal.in.gov.br/ (DOU)
Veterinary medicines and biologicals	✓	http://www.agricultura.gov.br/animal/produtos-veterinarios http://www.agricultura.gov.br/animal/produtos-veterinarios/control-oficial-de-produtos
Official delegation		
Veterinary Census		
Global (public, private, Veterinary, aquatic animal health professional, technical personnel)		
Per level		
Per function		
Census of logistics and infrastructures		
Activity Reports		✓
Financial Reports	✓	http://www.cgu.gov.br/
AAH Status Reports	✓	http://www.mpa.gov.br/monitoramento-e-controle/saude-pesqueira/notificacoes-oficiais-de-doencas-de-animais-aquaticos

Appendix 7: Organisation of the OIE PVS Evaluation of the AAHS of Brazil

Assessors Team:

- Team leader: Dr Ana Afonso
- Technical expert: Dr Larry Hammell
- Technical expert: Dr Nikša Barišić

References and Guidelines:

- Terrestrial Animal Health Code (especially Chapters 3.1. and 3.2.)
- Aquatic Animal Health Code
- OIE PVS Tool for the Evaluation of Performance of AAHS
 - Human, financial and physical resources,
 - Technical capability and authority,
 - Interaction with interested parties,
 - Access to markets.

Subject of the evaluation: AAHS as defined in the Aquatic Animal Health Code

- Included / Not included in the country's VS
- Inclusive / Not inclusive of other institutions / ministries responsible for activities of VS

Activities to be analysed: All activities related to animal and Veterinary public health:

- Field activities:
 - Aquatic animal health (epidemiological surveillance, early detection, disease control, etc)
 - quarantine (all country borders),
 - Veterinary public health (food safety, Veterinary medicines and biological, residues, etc)
 - control and inspection,
 - others
- Data and communication aquatic
- Laboratory diagnostic
- Research
- Initial and continuous training
- Organisation and finance
- Other to be determined...

Persons to be present: see Appendix 3

Sites to be visited: see Appendix 4

Procedures:

- Consultation of data and documents
- Comprehensive field trips
- Interviews and meetings with VS/AAHS staff and interested parties,
- Analyse of practical processes

Provision of assistance by the evaluated country

- Completion of missing data as possible
- Translation of relevant document if required
- Administrative authorisation to visit designated sites
- Logistical support if possible

Reports:

- a fact sheet or PowerPoint will be presented at the closing session
- a report will be sent to the OIE for peer-review no later than one month after the mission
- the current levels of advancement with strengths, weaknesses and references for each critical competence will be described,
- general recommendations may be made in agreement with the VS/AAHS.

Confidentiality and publishing of results

The results of the evaluation are confidential between the country and the OIE and may only be published with the written agreement of the evaluated country.