Ministry of Agriculture, Livestock and Food Supply
Secretariat for Animal and Plant Health – SDA
Animal Health Department – DSA

NATIONAL FOOT AND MOUTH DISEASE PREVENTION AND ERADICATION PROGRAM - PNEFA

Strategic Plan - 2017 – 2026

Version 1.0

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MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY
Secretariat of Animal and Plant Health - SDA
Animal Health Department - DSA
General Coordination for Animal Health - CGSA
Coordination for Terrestrial Animals - CAT

Division for Foot and Mouth Disease and other vesicular diseases – DIFA General Coordination of Animal Health Planning and Evaluation - CGPZ Esplanada dos Ministérios, Bloco D, Anexo A, 3º Andar, Sala 318/320-A CEP: 70043-900 – Brasília – DF

Tel.: +55 61 3218-2724/2658/3538/3617/2840

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Version 1.0 was prepared under the direct coordination of the Animal Health Department of the Ministry of Agriculture, Livestock and Food Supply, after hearing the interested parties.

ACRONYMS

Conpdec - National Council for Civil Protection and Defense

Cosalfa - South American Commission for fighting against Foot-and-Mouth Disease

DSA - Animal Health Department

EAC - Community Service Office

FN-Suasa - National Force of the Unified System for Attention to Agricultural and Livestock Health

GT - Working Group

Mapa - Ministry of Agriculture, Livestock and Food Supply

MMA - Ministry of Environment

MI - Ministry of National Integration

MD - Ministry of Defense

OIE - World Animal Health Organization

PGA - Agricultural Management Platform

Lanagro - National Agricultural and Livestock Laboratory

Panaftosa/OPS/OMS - Pan American Foot-and-Mouth Disease Center

Phefa - Hemispheric Program for the Eradication of Foot-and-Mouth Disease

Pnefa - National Program for the Eradication and Prevention of Foot-and-Mouth Disease

PNPS - National Program of Social Participation

POP - Standard Operational Procedure

PPIF - Integrated Border Protection Program

SDA - Secretariat of Animal and Plant Health

Sineagro - National System of Agricultural Emergencies

Sisbravet - Brazilian System for Surveillance and Veterinary Emergencies

Suasa - Unified System for Attention to Agricultural and Livestock Health

SV - Veterinary Service

SVE - State Veterinary Service

SVO - Official Veterinary Service

Sinpdec - National System for Protection and Civil Defense

UF - Federation unity

UVL - Local Veterinary Unit

EXECUTIVE SUMMARY

Over the last ten years, Brazil has made great strides in the world animal product market due to continuous improvements of its herd's health status and the undeniable quality of its exported products. In order to prospect valuable new markets, increasing the global participation of Brazilian agribusiness, a qualitative change in the country's sanitary status for foot-and-mouth disease is needed: this can come about with the recognition of the country as FMD free country where vaccination is not practised.

In order to do so, the Strategic Plan of the National Foot and Mouth Disease Program (Programa Nacional de Febre Aftosa—PNEFA) is being prepared and scheduled for execution in Brazil over the next ten years. The proposal has been drafted under the coordination of a Technical Group designated by the Ministry of Agriculture, Livestock and Food Supply's Secretariat of Animal and Plant Health (MAPA-SDA), which had contributions from different collaborators. The present text is an initial version to be finalized after the stakeholders have been heard in meetings promoted by MAPA in the first half of 2017.

This Plan has been prepared to meet the need to reformulate the PNEFA, considering the national and regional FMD scenarios and the challenges and opportunities facing Brazilian productive sector. Its main goal is to create and maintain sustainable conditions to ensure FMD-free status and to expand FMD-free zones where vaccination is not practised, thus protecting national livestock assets and generating maximum benefits for all players and for Brazilian society.

It thus aims to consolidate the sanitary status for FMD that has been achieved, to strengthen surveillance for vesicular diseases, prevent FMD and expand the FMD-free zone where vaccination is not practised so it covers the entire national territory and thus enhance the health of the herds that compose the national livestock heritage. The Plan is aligned with the World Animal Health Organization (OIE)'s Terrestrial Animal Health Code, and the Guidelines of the Hemispheric Program for the Eradication of Foot-and-Mouth Disease (PHEFA), helping eradicate the disease in South America also.

Geographic organization for Eradication

In order to carry out this transition in health status, a range of technical, strategic, geographical and structural criteria have all been taken into account and have led to the grouping of States into five blocks as shown in Figure 1. This clustering aims to favor the transition process from the status of FMD-free zones where vaccination is practised to that of FMD-free zones where vaccination is not practised, in a regionalized manner, starting in 2019 and ending in 2023, when the entire country would reach the status of "FMD-free where vaccination is practised", recognized by the OIE.

Because of the complexity of the animal health theme, Strategic Situational Planning (Planejamento Estratégico Situacional—PES) has been used to build the Plan. Objectives, strategic guidelines, global targets and a set of 16 operations were defined and grouped as follows:

- Interaction with stakeholders in the FMD prevention program;
- Extending the capabilities of Official Veterinary Services;
- Strengthening the animal health surveillance system;
- Transition from the status of foot and mouth disease free with vaccination to FMD-free without vaccination in Brazil.

Each of the 16 operations is justified and complemented by its respective matrix where all the scheduled macroactions are described; these in turn will trigger projects to be carried out throughout Brazil.

The financial sustainability of the Plan requires a remodeling of the current financing system, encompassing new alternatives of public and private financial contributions, which must be sufficient and timely.

The proposed management model calls for the enhancement of Brazil's Official Veterinary Service structure and of shared actions among its several actors, favoring the protagonism of all stakeholders.

The combination of public and private efforts, the infrastructure of the veterinary services and the solid technical foundations are the basis for the success of PNEFA— the Strategic Plan of the National Foot-and-Mouth Disease Program.

SUMMARY

1 - INTRODUCTION

The Animal Health Department (DSA) began discussions to reformulate the National Program for the Eradication and Prevention of Foot-and-Mouth Disease (Pnefa) in 2007, with participation of the Pan American Foot-and-Mouth Disease Center -Panaftosa / PAHO / WHO, Universities and State veterinarian service – EVS - professionals. At that time, participants came to list components and outline key strategies to be worked on in the reformulation of the Program. However, the work did not advance, mainly due to the numerous demands arising from the process of restitution of the sanitary status, lost with the disease occurrence in Mato Grosso do Sul and Paraná, between 2005 and 2006, which affected almost all FMD free zone under vaccination in the country. Then, efforts were focused on the expansion of the FMD free zone, resulting in the international recognition by the World Organization for Animal Health (OIE) of the states Alagoas, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, and Rio Grande do Norte, in the Northeastern region, and in the northern area of Pará, in the North region, as a foot-and-mouth disease free zone where vaccination is practised, in 2014. Actions with the same purpose continue in Amazonas, Amapá and Roraima.

A new initiative to reformulate the Pnefa took place in 2013, with the creation of a Working Group (WG) enforced by Ordinance SDA Nº 24, on February 6, 2013, and composed by representatives of the Animal Health Department - DSA, Bahia State Agency of Agricultural Defense (ADAB) and Panaftosa / PAHO / WHO, coordinated by the latter and accompanied by the General Coordination of Diseases Control (CGCD), linked to the DSA / SDA / MAPA. This group had its work interrupted with the death of its coordinator. However, the discussions, the content produced, and the methodological basis originally proposed were considered by the developers of this Plan.

In 2015, with Ordinance No. 80, dated October 22, 2015, a new WG was created with two representatives of DSA, one of Federal Superintendencies of Agriculture (SFAs), two of SVEs and one of Panaftosa / PAHO / WHO, with the objective of outlining new bases and strategies for the Program to strengthen the surveillance and prevention of foot-and-mouth disease in the country. The WG was coordinated by the representative of the current Division of Foot-and-Mouth Disease and other vesicular diseases (DIFA), supervised by the now-General Coordination of Animal Health (CGSA).

Since the last Pnefa review in 1992, the Program has undergone several adjustments and has advanced on its achievements, reaching the significant progresses currently recognized, such as:

a. elimination of clinical disease for more than 11 years;
b. absence of viral transmission / infection demonstrated with the support of several seroepidemiological studies carried out in recent years;
c. incorporation of the absolute majority of the herd into free zones with and without vaccination; and
d. strong participation and effective action of the community in the actions of the Program, mainly through vaccination campaigns, throughout the country.

These advances contributed to the reduction of restrictions on the internal transit of animals susceptible to foot-and-mouth disease and its products; allowed a wide access of Brazilian meats to the international markets and a high development of the national livestock production, motivated mainly by the improvement in the advantages to the producers.

Among the main adaptations passed by the Pnefa, the strategy of zoning associated with the classification of foot-and-mouth disease risk, taking into account the health conditions for the disease and the structural, technical and operational capabilities of the SVEs, with movement restrictions set between the different areas. These measures, among others, allowed: the gradual evolution of the Program driven by different degrees of political, economic and social interests; the strengthening of the structures of the SVs and the surveillance system for foot-and-mouth disease; and the elimination of viral transmission / infection. These measures also culminated in the implantation and gradual expansion of disease-free zones with international recognition by the OIE. In this process, the system of audits and supervisions on the SVEs, led by MAPA, played a preponderant role, guiding the necessary adjustments and improvements to the evolution of the sanitary status. Likewise, updates of the legal basis, in particular the publication of Normative Instruction No. 44/2007, ensured the regulatory framework for execution of the activities and latest evolutions of the Program, with due regards to international requirements.

Now, in a new context, new realities are emerging, and with this, new problems, challenges and needs arise to review the objectives of the Program, aligned with the guidelines of the Hemispheric Program for the Eradication of Foot-and-Mouth Disease (Phefa) to achieve and maintain a sustainable sanitary status by expanding the disease free zones with and without vaccination. For this, it is essential to manage the risks of its reintroduction, to improve the conditions for early detection of suspected cases of the disease, to correct possible occurrences quickly and efficiently, and to recover the sanitary status with minimum economic and social impacts. This scenario may contribute to the accessing new markets that better remunerate national livestock products, facing the high competitiveness of the international market, preserving the development and profitability of the productive chains involved, generating employment and income.

The reformulation of the Program has become subject of constant discussions and debates among technicians, managers, producers and industries, which have intensified as time passes without occurrences of the disease. The absence of the disease in the country for more than 11 years, exceeding more than 20 years in some regions, is supported by the demonstration of absence of transmission / infection of the agent in surveillance activities performed, giving technical support for the interpretation that it is eradicated and that widespread vaccination is no longer a necessary tool. The argument for maintaining vaccination based on the possibility of persistence of the disease in the region and

its possible reintroduction in the national territory has had limited effect on international border regions, but also becomes less and less sustainable with the irregular occurrence and the progress of free zones of the disease in South America.

The major challenges of the Program for the coming years will be consolidating the health status for foot-and-mouth disease and, in particular, adopting the necessary safe and viable measures to transform FMD-free zones where vaccination is practised into FMD-free zones where vaccination is not practised. To that end, it is important to recognize that herd vaccination has become the largest and most well-known component of the Program in recent years and its activities have been incorporated and dominated much of the routines of SVEs and producers. Changing this reality will therefore require the breaking of paradigms and profound changes in behavior by different actors involved. It is also important to recognize that the success of the strategies that will be adopted will depend on the active participation of all stakeholders involved and awareness that this Plan is a public property, which will guide the new process with emphasis on the prevention.

2 – JUSTIFICATIVE

Since the beginning of foot-and-mouth disease eradication process in Brazil, there have been numerous internal and external transformations that have influenced livestock production, industry, trade and the Brazilian SVO itself, collaborating for the level of control implemented and the favorable sanitary condition concerning the disease in the country so far. The concepts, methods and strategies for fighting the disease in the world have been modernized and improved and should be used more efficiently.

Brazil has become a world leader in cattle and pig production, as well as in exporting of its products, and seeks to access new markets that better remunerate, but that are also more demanding about the sanitary status for foot-and-mouth disease. The country needs to be more and more effective in its process of eradicating foot-and-mouth disease and in meeting the sanitary requirements agreed with its commercial partners.

The progressive implementation of FMD free zones has significantly advanced in the country, predominantly with vaccination, and is in the process of being completed. It is expected that the international recognition of FMD-free zone where vaccination is practised will be reached for the last areas of the North region until 2018. However, little progress has been made with the implementation of free zone where vaccination is not practised, which has remained restricted to the state of Santa Catarina since the beginning of the process. The health status for the disease has improved considerably in South America and favors further progress with FMD-free zones where vaccination is not practised. In addition, as a Phefa participant, there is great potential to contribute more to the achievement of its goals regarding the eradication of foot-and-mouth disease in the continent.

This new stage of the process, in order to occur more safely and be sustainable, will need to be well-targeted and coordinated, going through various adjustments and it has the maximum involvement of all stakeholders. Thus, the implementation of this Plan will be fundamental, as a strategic reference agreed between the parties, to better guide the process and contribute to the achievement of the established goals and objectives.

3 - METHODOLOGY

The discussion about the planning methodology is fundamental for the elaboration of the Plan and helps its applicability and success. Thus, in the last revision initiatives, much was discussed about which method would better suit the animal health problem in Brazil, more specifically the Pnefa.

Essentially, planning always seeks to solve a problem; in other words, to achieve a desired condition from a current situation, at a given moment. In order to plan properly it is necessary to answer two basic questions:

1. "*Where am I?*" - What is the current situation and the background to achieve this?
2. "*Where do I want to go?*" - What is the objective or condition desired at the end of the planning?

Answering these two questions, one can plan what to do to get out of the current situation and reach the desired situation, considering the political, social, economic-financial, cultural, productive and environmental conditions.

Thus, following a structured, systematic and formalized process, we analyzed the scenario and the problem to be faced. Next, we outlined how to solve the problem by defining the general and specific objectives, strategic guidelines, global goals and operations. These operations are composed of actions that will imply the execution of specific projects, adapted to the different realities of the country. The steps of this planning are shown in Figure 2.

Figure 2 - General steps in the planning executed by the elaboration of the Plan.

The Strategic Situational Planning (PES) was the method adopted to prepare this Plan, due to the characteristics of the animal health problem in the country, such as:

1. expressive complexity;
2. shared power;
3. striking intersectorality and transdisciplinarity;
4. uncertainties inherent to the processes with various social components;
5. multiplicity of causes, determinants and results with many possibilities of solutions.

In PES, the subject who plans is inside the problem and coexists with other actors who have powers, proposals and different interests. The method strives for giving governability to the process of structural and operational changing and, mainly, status changing in situations of shared power. The PES cycle is composed by four moments detailed below and illustrated in Figure 3:

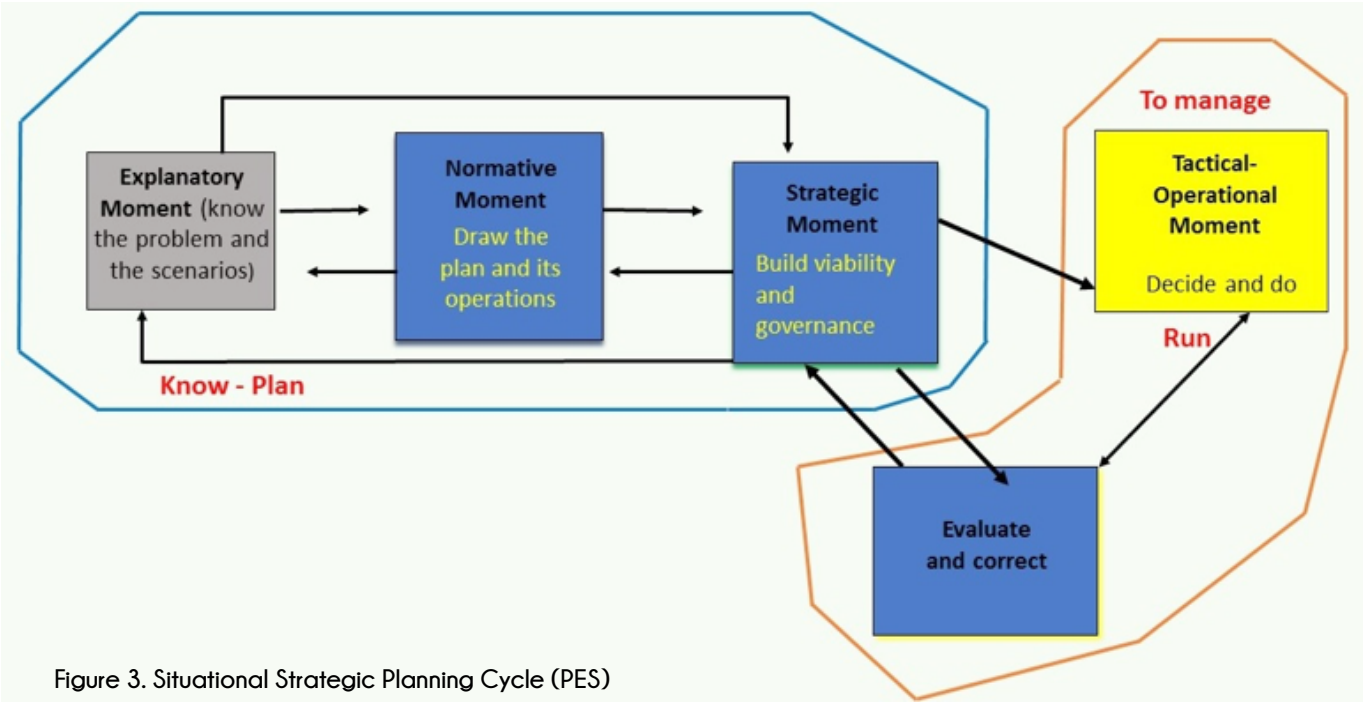


Figure 3. Situational Strategic Planning Cycle (PES)

Explanatory phase - It is the one in which the reality is described and the problem is defined, with its actors, its causes and its determinants. At that moment, it was sought to recover the historical and better characterize the current situation of the Pnefa, to understand the problematic involved and defining the directions to follow in a reasonable time horizon. All this consumed most of the time of the discussion in the constituted WGs, since it is the most difficult part of planning, especially in high complexity issues such as animal health.

Normative phase - It is the moment in which, finally, the Plan begins to be drawn, incorporating the elements of the previous moment and complemented with the objectives, strategic guidelines, fundamental principles, global goals and a list of operations to solve each component of the main problem.

The goals, general and specifics, address the different interests of the various actors and many aspects to be considered in the preparation of the Plan in order to obtain the best results, not only for part of the agents involved, but more comprehensively for the greater interested and funder: the Brazilian society.

In the definition of the strategic guidelines, it was pursued to identify the best paths to be followed to promote necessary changes on the animal health theme and achieve the main goal with greater security, avoiding undesirable setbacks in the established process.

In the description of the operations, it was emphasized: the importance of each of them to the success of the Program, with some concepts; a brief definition of what would be a satisfactory quality, especially in the condition of FMD-free without vaccination; the perspectives and specific strategies to make them feasible and contribute to reach the desired condition. Each operation is complemented with an operation matrix, presented as a tool to perform it. The operation matrices follow the model presented on Table 1 and contemplate the main actions to be executed as specific projects.

Table 1. Model for elaborating the operation matrixes of the Plan

Operation:								
Expected Result:								
Operation indicator:								
Measures	**Resources**	**Responsibles**	**Stakeholders involved**	**Level of coverage**	**Expected Product**	**Time for execution**	**Action indicator**	**Critical points**

Hereinafter are the components of the programming matrix presented above:

1. Operation - Description of the specific operation, which will have a direct impact on the general objective.
2. Expected Result - Description of the expected result of the operation, which will be influenced by the set of measures and their respective products.
3. Operation Indicator - Description of the operation's general indicator, qualitative or quantitative, that will allow monitoring of the operation's performance.
4. Measures - Description of each measure that composes the operation. Each action must be deployed and strategically and tactically adapted to the different realities and can generate specific projects.
5. Resources - Description of the inputs needed to implement the action: legal bases, materials, people, technologies, structure, equipment, among others.
6. Responsible - Description of the main responsible (institutions or sectors) for the coordination or execution of the action, to which the responsibility for the progress and expected products will be attributed.
7. Stakeholders involved - Description of all stakeholders (people, institutions, sectors) that can influence the action, positively or negatively.
8. Level of coverage - Description of the action scope: local, state, national, border, livestock circuit, zone, sub-region, among others. In specific projects that will be elaborated for the execution of the action, it will correspond to the places where it will be realized.
9. Expected Product - Description of what is expected with the execution of the action. The set of expected products should enable the achievement of the result of the operation.
10. Time for execution - Description of the maximum period, in months, foreseen for carrying out the action.
11. Action Indicator - Description of the indicator that will allow to monitor, qualitatively or quantitatively, the performance of each action. The set of stock indicators will reflect in the operation indicator.
12. Critical points - Description of variables that may compromise the accomplishment of the action, it means, political, legal, material, human, financial, cultural, environmental, technological, among others.

Strategic Moment - It is the time to build the viability of the Plan and exercise its governance, especially regarding the operations, preserving the provided strategic guidelines. At this point, the following question is answered: "How can we implement the Plan?" It is a question for constructing strategies to make it viable and, finally, to reach the general objective. For this, it is essential to take governance, considered as the result of the relationship between the variables that the actors control and those that they do not control, evaluated by their relative importance to the Plan and the motivations of these actors. Therefore, the most critical variables the Plan's management can control, the greater its governance. This governance is relative to each of the actors; to the demands that the Plan presents to them; and to their management and influence capabilities. Good governance requires the use of appropriate tools that helps the execution of operations, considering the risk to turn them unfeasible.

Tactical-operational Moment - It is the time to do, to act and to implement the Plan. From PES perspective, planning and management are inseparable. The Plan cannot become a "shelved" document but must be converted into a set of commitments of the stakeholders involved guiding the required changes in favor of the expected sanitary condition. Its execution, in large part, will depend on the management capability of its responsible. This management capability refers to the methods, techniques, skills, abilities and experiences of those responsible for conducting actions. At that moment, the important phase of evaluation and strategic alignment is scheduled, with the feedback of the Plan to turn it on feasible. The management of the Plan must seek mechanisms to make high impact actions feasible, even if they are under the control of other actors or that present high complexity for implementation.

4 - CURRENT REGIONAL SCENARIO FOR FOOT-AND-MOUTH DISEASE AND BRAZILIAN SCENARIO

4.1. REGIONAL SITUATION

The progress made in foot-and-mouth disease eradication in South America, after the first half of the Phefa Action Plan 2011-2020, anticipated some expected results, particularly in areas considered endemic or with sporadically occurrence at the beginning of the decade. Therefore, it is necessary and appropriate to analyze the current conditions and design the expected scenarios for the next years.

Most of the countries in the region maintain their foot-and-mouth disease status mainly with massive vaccination programs, suggesting that there is some considerable risk. The maintenance of immunization programs as a risk mitigation measure is only justified when there is evidence or non-zero probability risk of transmission or introduction of foot-and-mouth disease virus.

Although the expected step after a prolonged absence of outbreaks must be the achievement of the FMD free-without-vaccination country or zone status, the negative historical experience with the suspension of the vaccination process carried out between the late 90`s and early 2000`s cannot be ignored, particularly in the Southern Cone Sub-region, which has showed patterns of cross-border transmission of the agent, taking to a major epidemic. The national programs approach therefore needs to take into account the risk perspective, culminating in the safety of the process to eliminate foot-and-mouth disease and vaccination removal.

In addition, historical evidence indicates that the risk of introduction for foot-and-mouth disease into disease-free zones in South America is more likely to be associated with exposure of susceptible populations and agent dissemination linked to irregular movement of animals on zones or countries border areas and not to the formal and regular trade of animals and animal products between countries carried out in accordance with the Terrestrial Code1. (1 Terrestrial Animal Health Code of the World Organization for Animal Health – OIE)

The fact that Brazil has geographical borders with 10 countries and territories of South America (Argentina, Bolivia, Colombia, Guyana, French Guiana, Paraguay, Peru, Suriname, Venezuela and Uruguay), with different foot-and mouth-disease status should be analyzed in the process of revision and projection of this Plan. As important as assessing the risk of introducing foot-and-mouth disease in Brazil from each one of these countries, it will be evaluated on the basis of the sub-regional approach proposed by Phefa. In this sense, the foot-and-mouth disease situation of the sub-regions defined in Phefa and the internal strengths and vulnerabilities should be considered in order to better estimate the risk of introduction of the agent and proceed according to the general strategic guidelines and specific actions, aiming the objectives compliance of this Plan.

Phefa has established four sub-regions to guide the process of eradicating foot-and-mouth disease in South America, as shown in Figure 4. One of them is within the country itself. In the others, Brazil shares borders with countries that integrate them. Next, the epidemiological and risk situation to be considered in the projections of the Program is presented, discussing only the three sub-regions with an external relationship with Brazil.

4.1.1. SOUTH CONE SUB-REGION

This sub-region comprises the largest cattle population in the continent and is formed by the following territories of the countries of South America:

a. the whole territory of Argentina, Chile, Paraguay and Uruguay;
b. Non-Altiplan region of Bolivia;
c. Brazil territory composed by Rondonia, in the North; Mato Grosso and Mato Grosso do Sul, in the middle-west; São Paulo, in the Southeast; Paraná, Rio Grande do Sul and Santa Catarina, in the south.

Most of this sub-region is FMD-free with vaccination, except the territories of Chile, Patagonia Argentina and Santa Catarina in Brazil, which already got the FMD-free without vaccination status. Although parts of this sub-region have advanced to FMD-free without vaccination status (Chile, 1981, Uruguay, 1996, Argentina, 1999, Rio Grande do Sul and Santa Catarina, 2000), there have been two disastrous situations that, even now, have hindered the decision-making process to conclude the eradication process and are relevants to the Program in Brazil: the first, represented by outbreaks of foot-and-mouth disease caused by types O and A viruses, in 2000 and 2001 respectively, which affected Argentina, Uruguay and, in a minor extension, Brazil. These outbreaks were associated with early removal of thenvaccination to achieve FMD-free without vaccination status, without considering the risks of sub-regional transmission properly; the second epidemiological situation has been the occurrence of sporadic outbreaks in areas with FMD-free with vaccination status, all caused by genotypes of type O virus, historically endemic in the sub-region. These genotypes, which circulated between 1998 and 2011, affected border areas of Argentina, Bolivia, Brazil, Paraguay and Uruguay, with their last appearance in a central province of Paraguay. These outbreaks evidenced the ability of these genotypes to be transmitted in populations submitted to periodic vaccination in a cross-border area. On the other hand, they have highlighted the difficulties of surveillance systems to quickly detect and contain the outbreaks. According to Naranjo (2006), in spite of massive vaccination campaigns and the recognition of FMD-free with vaccination zones in the involved areas, the conditions of vulnerability and receptivity persisted in sufficient herds, what was called "niches of endemism".

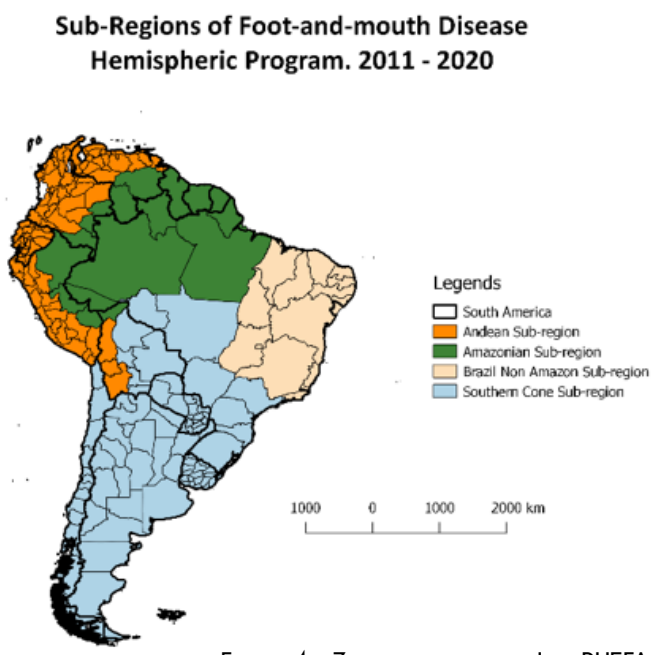


Figure 4 – Zoning map regarding PHEFA

This epidemiological situation has been considered and the countries have invested in improving vaccination coverage to increase immunity in subpopulations where sanitary management was more distant or weak, such as areas with sporadic outbreaks in cross-border area of the countries (Naranjo & Cosivi, 2013), and the immunity of young animals, respectively.

In addition, surveillance, including systematic serological tests to verify the absence of virus transmission, has been strengthened. These and other actions allowed the recovering of the FMD free with vaccination status and its maintenance for four years without new disease outbreaks. Also, before the last outbreak in 2011, more than five years had been passed since the last occurrence of the disease in the Southern Cone. The remained hypotheses is that the infection would not have been extinguished as a result of the incomplete risk mitigation actions taken or that there would still be a risk of a persistent "endemic niche" in the geographical area where the O-virus was observed. This risk issue has a large geographical dimension, what would cover areas where sporadic outbreaks occurred between 2003 and 2011, involving territories of four countries of the sub-region.

Considering that all sub-region is officially recognized as foot-and-mouth disease free, despite the historical disease recurrence after suspension of vaccination programs and the pattern of sporadic outbreaks in systematically vaccinated populations, associated with the viral genotypes previously considered endemic in the region, it is estimated that the probability of foot-and-mouth disease virus introduction by geographic proximity in this sub-region is low2.(2 Low risk - considers that the occurrence of the event is very unlikely, but occurs under certain conditions.)

4.1.2. AMAZON SUB-REGION

This sub-region holds the second largest area, but is the least populated and involves the territory of eight countries:

a. Provinces of Loreto, Madre de Dios and Ucayali, in Peru;
b. Province of Pando, Bolivia;
c. Provinces of Amazonas, Guaina and Vaupes, in Colombia;
d. Amazonas and Bolívar, in Venezuela;
e. Acre, Amapá, Amazonas, Pará and Roraima, in Brazil;
f. Suriname, Guyana and French Guiana.

This sub-region shares the Amazonian ecosystem and maintains territories with different foot-and-mouth disease sanitary status: provinces in Peru are almost entirely recognized as being foot-and-mouth disease free without vaccination along with the territories of Guyana and French Guiana. The Province of Pando, in Bolivia, is recognized as being foot-and-mouth disease free with vaccination. The three Amazonian provinces from Colombia had the status of FMD-free with vaccination suspended, as a reflection of recent occurrences of the disease in other provinces of the Andean sub-region. Suriname and the states of Amazonas and Bolívar, in Venezuela, have not yet obtained the free recognition. In Suriname, the population of susceptible animals is very small, vaccination has never been carried out and there is no historical of foot-and-mouth disease occurrence. In Venezuela, systematic vaccination is carried out and the latest foot-and-mouth disease clinical case reports were in 2013; in the state of Bolívar, there are reports of 30 outbreaks in the period between 1980 and 2011, representing occurrences of the sporadic type associated with the entry of infected animals from endemic areas of the country; in the Venezuelan Amazon, there is only one report recorded in the same period.

In the five Brazilian states that are part of this sub-region, Acre and Pará (except for two protection zones in the Pará border with AM and AP), the municipalities of Guajará and Boca do Acre, and parts of the municipalities of Canutama and Lábrea, all in Amazonas, are foot-and-mouth disease free with vaccination. Most of the Amazon and the states of Amapá and Roraima are still in the process of achieving free with vaccination status within Pefa's time frame.

The Brazilian part of this sub-region registered its last outbreaks of foot-and-mouth disease in 2004, in the Amazon, caused by type C virus, and in Pará, by type O virus. These outbreaks were observed after three years without clinical occurrence of the disease in the area, which had no clinical cases since 2001.

In the evaluation of foot-and-mouth disease risk introduction in Brazil from territories or countries that are part of Amazon sub-region, it is important to point out that the largest cattle and buffalo herds are in Brazil. The bovine populations of neighboring countries in this sub-region have a marginal role in maintaining or propagating foot-and-mouth disease, adding that a large proportion of the territories are free with or without vaccination, or that there is no historical of occurrences, such as Suriname. On the other hand, Venezuela is the only country in the sub-region with a relatively recent occurrence of foot-and-mouth disease and with great probability to maintain viral transmission in its bovine population.

Therefore, two complementary risk assessments for the Amazon sub-region can be proposed: one that addresses the risk of foot-and-mouth disease introduction coming from Venezuelan territory

and another that estimates the risk of introduction from the rest of the border areas with Brazil. Relative to Venezuela, given the geographical characteristics of the border region, the historical of the disease occurrences without relation between the parties; the non-existent livestock farming in the border region; the vaccination of cattle and buffalo on the Brazilian side carried out by the SVO; and the strengthening of the surveillance system on the Brazilian side, although this is an infected country and presents geographical proximity with Brazil, a very low probability can be attributed to it3(3 Very low risk - considers that the occurrence of the event is very unlikely, but cannot be ruled out). In addition, it is considered that the application of the FMD control program validation for that country by OIE and the Technical Cooperation Program signed with PANAFTOSA / PAHO / WHO will promote the necessary advances and that country will reach the status of foot-and-mouth disease free with vaccination until the end of the Phefa Action Plan. For the other territories in the sub-region, which is composed by free populations or with no historical of vaccination, the risk of virus introducing may be considered insignificant4. (4 Risk insignificant - considers that the occurrence of the event is unlikely and there is no merit to be considered.)

4.1.3. ANDEAN SUB-REGION

It comprises the territories of the Bolivian Altiplan, Ecuador, Peru, part of Colombia, and non-Amazon region of Venezuela. The Andean sub-region has made significant progress in recent years. There was recognition of FMD free without vaccination status for 98% of the territory of Peru, Bolivian Altiplan and Chocó (Colombia). In addition, a border area located in northern Peru, all of Ecuador and the rest of the Colombia territory have been recognized as being foot-and-mouth disease free with vaccination, although the latter has its status suspended because of the disease resurgence in some parts of the country in June 2017. In Venezuela, the last disease report in this sub-region occurred in 2013.

Although the Andean sub-region is composed by countries that share borders with Brazil, the territories that compose it are beyond the Brazilian border and are intermediated by territories that are part of the Amazon sub-region. Therefore, the risk of foot-and-mouth disease introduction in Brazil from the Andean sub-region is mitigated, not only by the distance and geographical characteristics of the region, but also by the health status of the countries that compose it, except for Venezuela. In addition, the strains of virus O and A that historically circulated in the countries of this sub-region form a group of genotypes common to each other, with no evidence of linkage to outbreaks observed in the other sub-regions. Thus, even with the disease resurgence in Colombia, it can be concluded that the probability of foot-and-mouth disease virus introduction in Brazil from this sub-region can be considered insignificant.

4.2. NATIONAL SITUATION FOR FOOT AND MOUTH DISEASE

Brazil began the process of fighting against foot-and-mouth disease in 1963, organizing vaccination campaigns in some regions of the country. In 1992, the Program was reformulated, aiming the eradication of the disease and from them it has evolved considerably with the progressive implantation of free zones, until the present day. This evolution followed a regionalization of production systems, organized in independent livestock circuits, associated with foot-and-mouth disease epidemiological characteristics, starting from the South towards the North of the country. The first FMD free zone with vaccination was implanted in 1998 and involved Rio Grande do Sul and Santa Catarina. In 2007, the OIE recognized the country's first FMD-free zone without vaccination, which remains to this day. In 2014, the FMD free zone with vaccination has been extended to seven states in the Northeast and the northern region of Pará. Brazil has remained without the disease since April 2006, more than 11 years under this sanitary condition.

Figure 5 shows the foot-and-mouth disease sanitary status in Brazil up to the conclusion of the elaboration of this Plan, more detailed described, by zone, afterwards.

Figure 5 - Country health status for foot-and-mouth disease (OIE), 2018.

Official FMD status in Brazil

The four FMD free zones (with or without vaccination) are covering the whole territory of Brazil

FMD free zone where vaccination is not practised, consisting of State of Santa Catarina (February 2007)

FMD extended free zone where vaccination is practised, consisting of the States of Amapá, Roraima, Amazonas, Pará, Rondônia, Acre, Espírito Santo, Minas Gerais, Rio de Janeiro, Sergipe, Distrito Federal, Goiás, Mato Grosso, Paraná, São Paulo, Bahia, Tocantins, Alagoas, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, and part of Mato Grosso do Sul (September 2017)

FMD free zone where vaccination is practised, consisting of the former high surveillance zone (August 2010) and covering part of Mato Grosso do Sul

FMD free zone where vaccination is practised, consisting of State of Rio Grande do Sul (September 1997)

State Framed State is part of two different FMD zones

* Dates shown in brackets indicate when the relevant application was submitted to the OIE by the Delegate.

4.2.1. FREE ZONE WHERE VACCINATION IS NOT PRACTISED

Foot-and-mouth disease-free zone where vaccination is not practiced is composed by Santa Catarina and represents only 1.1% of the national territory, where 2% of Brazilian cattle and buffalo are raised, but with 16% of national swine production. This zone borders with Rio Grande do Sul and Paraná, and is bordered by the province of Missiones, in Argentina, all recognized as foot-and-mouth disease free where vaccination is practised.

The last foot-and-mouth disease outbreak in Santa Catarina occurred in 1993, in pigs inside a slaughterhouse located in the municipality of São Miguel do Oeste, with the type A virus isolation. This state had its free without vaccination status recognized by MAPA in 2000 and by OIE in 2007.

The maintenance of this status is important to reach new markets. Therefore, it will be imperative to continue improving the disease surveillance system in this are;, to identify and correct vulnerabilities continuously; to improve early detection mechanisms and to provide a timely and effective response to any health emergency. In addition, it is important to increasingly strengthen relations between public and private sectors, always pursuing greater involvement in the Program decisions and actions in order to provide political and financial support to SVO actions.

4.2.2. FREE ZONES WHERE VACCINATION IS PRACTISED

FMD free zones where vaccination is practised represent approximately 76.1% of the national territory, where there are 97% of the Brazilian bovine and buffalo herd. These areas cover most of the national production of foot-and-mouth disease susceptible species, showing some productive interdependence and few natural geographical barriers.

After the occurrence of foot-and-mouth disease in 2005, recovering of suspended sanitary status and expansions of free zones led to the definition of four zones of foot-and-mouth disease free with vaccination status in the country, by OIE, with the following composition:

a. Zone 1, constituted by Rio Grande do Sul;
b. Zone 2, constituted by Acre, Rondônia, the municipalities of Boca do Acre, Guajará, parts of the municipalities of Canutama and Lábrea, in Amazonas, on the border with Rondônia;
c. Zone 3, constituted by Paraná, in the South; the Southeast region; the Central-West region (except a cross-border zone delimited in Mato Grosso do Sul); the Northeast region; Tocantins and Pará (except for the protection zones at Amazonas and Amapá), in the North region;
d. Zone 4, constituted by a territorial belt about 15 km wide, from the international border of Mato Grosso do Sul, which extends through the municipalities of Porto Murtinho, Caracol, Bela Vista, Antônio João, Ponta Porã, Aral Moreira, Coronel Sapucaia, Paranhos, Sete Quedas, Japorã, Mundo Novo, Corumbá and Ladário.

These zones have extensive land or river border areas with Argentina, Bolivia, Paraguay and Uruguay, all recognized as being foot-and-mouth disease free with vaccination, and Peru, recognized as being foot-and-mouth disease free without vaccination. In these border regions, it is important to highlight the significant relationship that characterizes livestock production and their local economies, which requires differentiated attention and surveillance to protect the livestock heritage developed in the region. Then, it will be important to review and strengthen the SVO structures installed to serve the region in order to promote greater protection to the national herd, especially in the event of a possible re-emergence of the disease. There is also a need to move forward with institutional relations, for greater and continuous interaction with the SVOs from the neighboring countries, acting increasingly in the most vulnerable areas, especially in the border regions.

The last foot-and-mouth disease occurrences were recorded in Zone 1 (Rio Grande do Sul, 2001), Zone 2 (Acre, 1999), in Zones 3 and 4 (Pará, 2004; Paraná and Mato Grosso do Sul, 2006, the last registered in the country). In Zone 1, the agent type involved was A virus and, in the others, the O virus. In all cases, disease eradication measures were adopted. Surveillance in these areas has demonstrated absence of viral transmission in populations of susceptible animals and has maintained sanitary status.

In Zone 3 lays the laboratories that handle foot-and-mouth disease virus in the country: the official network for diagnostics and the private vaccines producers, are under adequate biosafety and biosecurity level. In Pedro Leopoldo (MG) stands the official laboratory performing diagnosis with specimens from suspected vesicular diseases from the whole country; this unit holds the diagnostic laboratory of Panaftosa / OPS / OMS, OIE reference for foot-and-mouth disease, which serves South American demands and produces virus seeds for vaccine industries. Specifically, in Minas Gerais and São Paulo, the five laboratories that produce vaccines work to meet the internal demands of some neighboring countries, all with internationally recognized levels of biosafety. At the 44th Ordinary Meeting of Cosalfa 44, manipulation of exotic strains of the virus was allowed in the region, under conditions specified in its Resolution III.

Brazil produced about 301 million doses of inactivated, trivalent (serotypes A, O and C) and bivalent serotypes (serotypes A and O) vaccines, the latter for export, in 2016. This volume represents about 70% of vaccine production approved for use in foot-and-mouth disease programs in South America. Brazil still imports from Argentina about 36 million doses for use in the country. Both the production and the distribution of the immunogen are fully attended by the private sector, which has its own structure and logistics, supervised in all its phases by the official sector, from production to its application. There is an unused production capacity and a surplus of strategic vaccine production agreed with MAPA and fully maintained by the private sector. However, there is no antigen and vaccine bank formally constituted or associated with any foreign immunogen bank for emergency demands. Such condition needs to be adjusted to give properly support to the new evolutionary process that seeks to transform these zones into FMD-free without vaccination. Brazil has participated in hemispheric discussions around the issue, particularly in the context of Cosalfa, which has presented the Regional Bank of Foot-and-Mouth Disease Antigens (BANVACO) as the best alternative for the region.

Brazil has a 212 million cattle and buffaloes herd distributed in 23 foot-and-mouth disease free with vaccination Federal Units, systematically vaccinated with trivalent vaccines, serotypes A, O and C, following a national calendar. The vaccination strategies are adequate for each region, with the predominant half-yearly vaccination of cattle and buffaloes up to 24 months age, and annual vaccination of animals above this age group. Some regions still carry out the bi-annual vaccination of all cattle and buffaloes but tend to evolve to another strategy as mentioned. Other regions,

where climatic conditions do not allow either of the two strategies, such as the Pantanal region, the Marajó Archipelago, Bananal Island and Amapá, only vaccinate the entire herd annually.

The technical and operational capability and structure of the SVO are consolidated in FMD free zones with vaccination. However, MAPA regular assessments indicate structural and technical improvements and adequacy requirements to support progress towards FMD-free without vaccination status. The funding mechanisms of the Program need to be adjusted to be sufficient in supporting the new health condition; vulnerabilities need to be continuously identified and corrected; the surveillance system must be evaluated, adjusted and strengthened to better address the risks of disease reintroduction.

Relations between public and private actors need to be improved and expanded, especially in areas where livestock farming has less export potential, aiming greater community participation at the Program implementation.

4.2.3. ZONE NOT FREE OF FOOT-AND-MOUTH DISEASE

The areas that compose this zone are in the Amazon Region, representing 22.8% of the national territory, with approximately 1% of the foot-and-mouth disease susceptible herds. They are composed by Amapá, Roraima, most of Amazonas (except the municipalities of Boca do Acre; Guajará; parts of the municipalities of Lábrea and Canutama, located in the Rondônia border; all recognized as being foot-and-mouth disease free with vaccination) and the two protection zones of the foot-and-mouth disease free with vaccination zone, in Pará: the first located to the north of the state, on the border with Amapá and composed by the municipalities of Afuá, Breves, Gurupá, Melgaço and parts of the municipality of Chaves; the second located in the extreme west of the state, on the border with the Amazon, and composed by the municipalities of Faro, Terra Santa and parts of the municipality of Juruti.

Amazonas is bordered by Colombia and Peru, where the first country has its FMD free zone with vaccination status suspended and the second one is still recognized as a foot-and-mouth disease free without vaccination zone; and by Venezuela, a country not yet free of this disease, where borders are formed by extensive and dense forests, and livestock farming is inexpressive and destined for local supply. The state of Roraima borders with Guyana, foot-and-mouth disease free of without vaccination, and also with Venezuela, where most of the border is also formed by dense forests and mountainous formations; in the few border areas where there is a small cattle ranch, the SVO operates more directly and ostensibly since 2010, particularly in the indigenous lands of the region, minimizing the risk of introducing the disease through that region. Amapá is bordered by French Guiana, foot-and-mouth disease free without vaccination, and with Suriname, in areas where dense Amazon rainforest predominates, the disease has never been registered and vaccination is not practised. Internally, almost every non-free zone is bordered by the FMD free zone with vaccination in the country.

The last time foot-and-mouth disease occurred in Amapá was in 1999; in Roraima was in 2001; and in Amazonas, specifically in the municipality of Careiro da Várzea, was in 2004, where the C virus was last isolated in the continent. In the occurrences of Amazonas, eradication measures were adopted, followed by disease surveillance and systematic vaccination of bovine and buffalo herds in each state, obeying national strategies. In the period from 2008 to 2011, large official operations were carried out to register properties, producers and herds, also surveillance and vaccination against foot-and-mouth disease in an extensive area involving the municipality of the last foot-and-mouth disease occurrence and 11 other municipalities in the region, without any case of the disease. Similar actions were also carried out in Amapá in 2009 and 2010, with the same results. Between 2014 and 2016, seroepidemiological studies were carried out throughout the region, which indicated that there was no foot-and-mouth disease virus transmission in the populations investigated. These studies considered a minimum expected 1% prevalence of infected herds and of 5 to 10% intra-herds infected as well, with 95% of sensitivity and confidence level and 100% specificity. Further studies were carried out in the first half of 2017.

Livestock in this area is concentrated in certain regions, usually bordering rivers and main roads, and is characterized by access and management limitations of herds that requires different strategies of action. Consequently, the activity has little economic expressiveness, being mainly focused on domestic supply. In Roraima, with more favorable livestock characteristics, there are greater prospects for the sector expansion and export potential. The state conducts and regularly sells the surplus bovine production to Manaus, capital of Amazonas.

Even after high investments in recent years to strengthen SVOs in Amazonas, Amapá and Roraima along with structural consolidation of these services, operationalization of animal health actions and effective and broad participation of the private sector, the evolution and maintenance of the health status continues to be a challenge for the region. The state of Roraima obtained the foot-and-mouth disease free zone with vaccination national recognition of in April 2017. The state of Amapá evolved its risk classification from Medium Risk (BR-3), matching the sanitary condition of the Amazonas state. These last two States tend to evolve into FMD free zone with vaccination later this year and the three States above-mentioned are expected to gain international recognition as FMD free zone with vaccination by OIE in 2018.

5 – OBJECTIVES

5.1. GENERAL OBJECTIVE

This Plan seeks to create and maintain sustainable conditions to guarantee the status of foot-and-mouth disease free country and to expand free zones without vaccination, protecting the national livestock and generating maximum benefits to the stakeholders involved and to Brazilian society.

5.2. SPECIFIC OBJECTIVES

a. a. Make the country foot-and-mouth disease free without vaccination internationally recognized, in a gradual and regionalized way, considering the epidemiological, geographic, political-economic, institutional and technical-operational conditions, and preserve the conquered condition.

b. b. Strengthen measures to prevent and reduce foot-and-mouth disease vulnerabilities throughout the country;

c. c. Improve the SVO capability in each country, giving priority to the most vulnerable regions, in addition to those with better prospects for progress towards the FMD free zone without vaccination status;

d. d. Strengthening public-private partnerships, expanding community participation in the decision-making process and in the foot-and-mouth disease prevention in the whole country; to ensure technical, political and financial support to the Program; and

e. e. Contribute to the modernization of the actions in Animal Health and, consequently, the strengthening of the Unified System of Attention to Agricultural Health - SUASA.

6 - FUNDAMENTAL PRINCIPLES

a. Promotion of animal health;

b. Consideration to food security and sustainable development;

c. Actions and decisions based on technical and scientific criteria; and

d. Use of risk and cost / benefit analysis in the decision-making process.

7 - STRATEGIC GUIDELINES

The guidelines described below took into consideration the objectives and goals of this Plan, the SVO conditions and its relations with the private sector, the risks of disease reintroduction in the country, the need to strengthen the disease prevention mechanisms, prioritizing areas with greater vulnerabilities identified, the economic aspects involved and the new characterization of productive systems in the country.

The expectation is to promote significant changes in how the Program works, which will no longer use systematic vaccination and will increasingly reinforce prevention and surveillance mechanisms, aiming to enhance the capacity for early detection and rapid response to the possible occurrences of foot-and-mouth disease.

In this way, the following strategic guidelines were defined:

a. Shared management and social participation - the Program management should be shared and must have effective social participation in all public and private bodies and sectors, primarily at the local level.

b. Improvement of SVO's capabilities - SVO should promote sustainable technical and structural improvements, identifying weaknesses and correcting them in the shortest time possible, prioritizing the most vulnerable and strategic areas.

c. Regionalization of actions - actions will be implemented primarily regionally, agreed with the sectors concerned and coordinated by the national health authority.

d. Financial support - the financing mechanisms of the Program, at federal, state and private levels, should be sufficient and timely to support the new challenges of the Program, including public and private funds to support prevention and action in emergencies.

e. Adequacy and strengthening of the surveillance system - the FMD surveillance system should be sufficient to meet the challenges of the new sanitary condition, strengthening the capacity for prevention, early detection and response to emergencies.

f. Agility and precision in diagnosis - the system should ensure rapid case detection and precision in the diagnosis for foot-and-mouth disease and its differential diseases.

g. Immunogenic prediction for veterinary emergencies - the country should have access to an antigen bank to produce vaccines against foot-and-mouth disease, connected with other regional or global banks, for use in emergencies.

h. International cooperation - the country should promote articulation and technical cooperation at the global and regional levels to strengthen disease surveillance and control actions in regions with viral transmission / infection, as well as support the transition for other countries in the region to foot-and-mouth disease free without vaccination status.

i. Education and social communication in animal health - actions should be based on structured educational and communication initiatives that favor the success of the Program.

8 - GLOBAL GOALS

The goals established herein are the national scope and reflect the complexity of the Plan. Thus, the scope of each of them will result from the performance of the operations described in the following topics.

a. Reorganize the Program regionalization in 2017, considering previous analysis of the geographical distribution of livestock flows and animal movement, the common interests and conditions, aiming the strategy of gradual expansion of the foot-and-mouth disease free without vaccination zone.
b. Plan the vaccines demand, considering the schedule for vaccination removal and the definition of an antigen and vaccine bank to meet possible emergencies, until 2018.
c. Expand and improve the diagnostic capacity, to respond to national demands with greater efficiency in the whole country, until 2018.
d. Strengthen biosecurity conditions and mitigate the escape and spread of foot-and-mouth disease virus potential risk from diagnostic and vaccine laboratories for FMD by 2018.
e. Evaluate the possible risks of infection and introduction of foot-and-mouth disease in defined areas, in order to subsidize the decision-making to expand the foot-and-mouth disease free without vaccination zone until 2019.
f. Evaluate and adapt the surveillance system for foot-and-mouth disease, seeking to increase its sensitivity and strengthen disease prevention, identify and reduce possible vulnerabilities by 2020.
g. Improve relations with neighboring countries through the formulation of bi or multilateral acts, implementation of joint action plans for greater interaction and action in the implementation of animal health actions by 2021.
h. Develop a national continuing education program to train SVO staff, qualified professionals, industry and other actors, prioritizing areas under sanitary status transition, states with international borders or those with greater deficiency identifieds in other areas of the country, until 2022.
i. Strengthen SVO's capabilities, especially for prevention, early detection and rapid response to emergencies, reaching the whole country by 2022.
j. Seek the international recognition of new foot-and-mouth disease free without vaccination zones, according to the new regionalization organized and where the conditions are evaluated as favorable, from 2019 and reaching the whole country in 2023.
k. Expand institutional relations and partnerships between public and private sectors that can contribute to the progress of the different measures contemplated in this Plan by 2026.
l. Develop a national program of education and social communication in animal health to promote the actions of the Program with greater social participation in the whole country by 2026.

The established deadlines reflect the moment in which the goals must be reached in order to not compromise the execution of the Plan and the planned actions should not suffer discontinuity.

9 – OPERATIONS

For the accomplishment of this Plan there are 16 operations, distributed in four categories, cited below and illustrated in Figure 6:

INTERACTION WITH STAKEHOLDERS IN THE FOOT-AND-MOUTH DISEASE PREVENTION PROGRAM

a. a. Strengthen the intersectoriality and transdisciplinarity of actions with emphasis on foot-and-mouth disease
b. b. Promote the strengthening of regional and international cooperation on foot-and-mouth disease
c. c. Promote education and media in animal health
d. d. Strengthen social participation

EXTENSION OF THE CAPABILITIES OF THE VETERINARY SERVICES

a. a. Assess, refine and strengthen the capabilities of the Veterinary Services
b. b. Strengthen measures to prevent the introduction of foot-and-mouth disease
c. c. Strengthen local animal health management
d. d. Update the legislation and operational procedures related to vesicular diseases
e. e. Train official professionals and community stakeholders in animal health
f. f. Strengthen the animal health emergency system (preparedness, maintenance and adequate response)

STRENGTHENING THE ANIMAL HEALTH SURVEILLANCE SYSTEM

g. a. Improve the agricultural register in the SVO
h. b. Strengthen mechanisms for national control of the movement of animals susceptible to foot-and-mouth disease, its products and by-products
i. c. Strengthen the national surveillance system for foot-and-mouth disease
j. d. Strengthen the national animal health information system
k. e. Strengthen the laboratory diagnosis for vesicular diseases
Transition accomplishment from FMD-free zone where vaccination is practised to FMD-free zone where vaccination is not practised in the Country

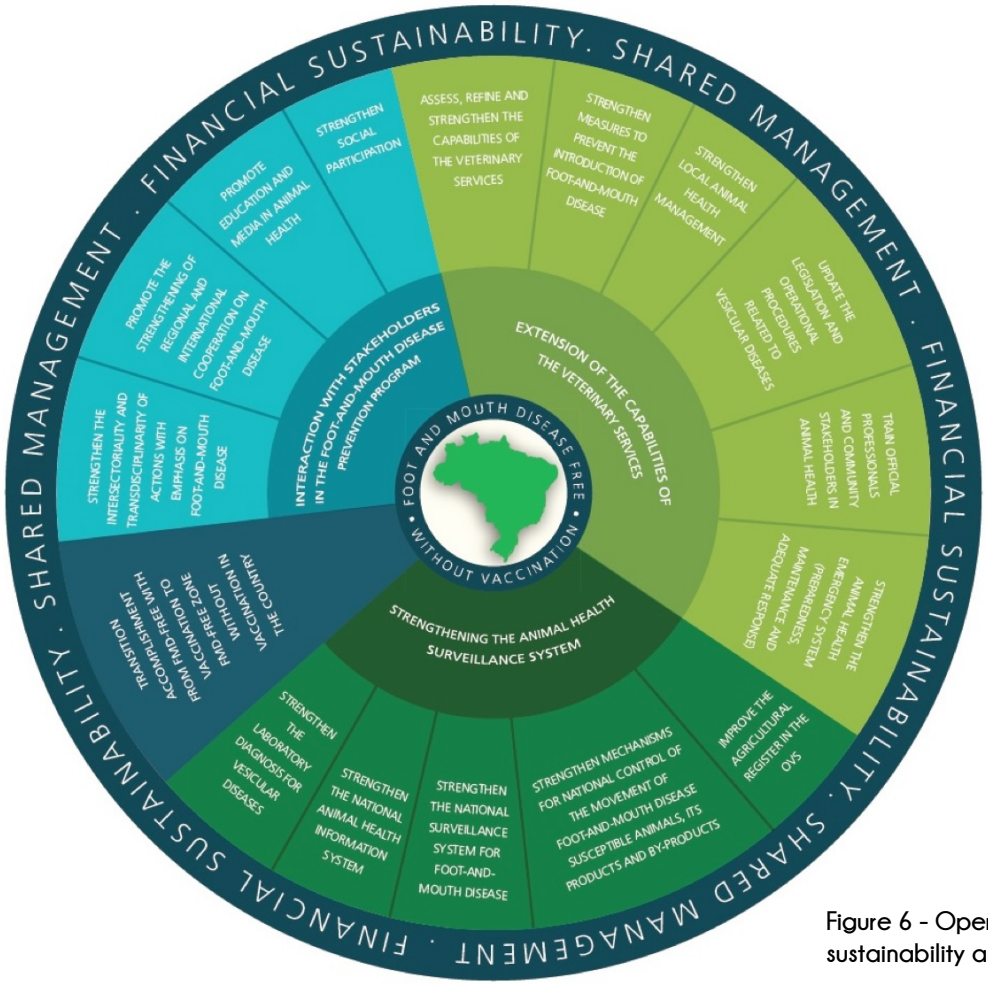


Figure 6 - Operations, financial sustainability and management

9.1. INTERACTION WITH STAKEHOLDERS IN THE FOOT-AND-MOUTH DISEASE PREVENTION PROGRAM

9.1.1. STRENGTHEN THE INTERSECTORIALITY AND TRANSDISCIPLINARITY OF ACTIONS WITH EMPHASIS ON FOOT-AND-MOUTH DISEASE

Bellini et al. (2014), discussing intersectoriality in the context of public policies, conceptualized it as a logical management which presupposes articulation and integration of different sectors, preserving the specificities of areas and passing through different spheres of social policies, seeking to overcome fragmented practices and achieve efficiency in the pursuit of public policies. They comment, however, that their practice is effective in a political process permeated by contradictions, resistance, divergence, scarcity of resources and other elements, but that seeks the synergism of results in divergent situations to support the right of users.

Nascimento (2010 apud Cavalcanti et al., 2013) says that intersectoriality has become one of the requirements for the implementation of sectoral policies, aiming at their effectiveness through the articulation between governmental institutions and civil society. Machado (2010) also comments that intersectoral practices, since they are based on articulations between different subjects and sectors, and therefore diverse knowledge, powers and wills, are presented as a new way of working and building public policies. The author emphasizes that working accross different sectors and actions is a new social practice, reconstructed from the reflection and the democratic exercise, therefore, becoming a democratizing strategy, fully consistent with the general purposes of this Plan

In the same direction, transdisciplinarity appears in the field of scientific praxis as a new modality of discipline able to deal with the complex objects that permeate fields of knowledge and action of the social sphere (ALMEIDA FILHO, 2000).

Roquete et al. (2012) says that the contemporary context increasingly demands that expanded forms of thinking be used to approach the complexity of reality and presents transdisciplinarity as an alternative. Aiub (2006) identifies in it a new way of understanding the world, which allows one to go beyond the disciplines and build a flexible, plastic knowledge to the unique needs of each context, but sufficiently broad enough to allow the understanding of difference and the emergence of innovation.

Almeida Filho (2000), analyzing the relations between transdisciplinarity and intersectoriality in the field of human and collective health, interprets that the first one appears as an alternative approach to knowledge production and the second as a solution strategy for the problems in the field of social practices. This way of thinking and acting is fully in keeping with the new form sought

It is known that only the political or public will is not enough to promote the implementation of the changes necessary for the

success of a Plan like this one, which mainly seeks to prevent foot-and-mouth disease. There is a need to increasingly apply different ways of analyzing the situation in relation to the disease, articulating with the different actors involved, institutional and individual, both public and private, to face the complex challenge that the Plan imposes to be successful. This will require an integrated view of the problems, with the participation of each stakeholder in the search for solutions to face them. The intersectoriality corresponds to articulation of knowledge, powers and experiences of the stakeholders in planning, execution and evaluation of actions, producing a synergetic effect in complex situations, as the problem of foot-and-mouth disease, aiming at the common interest, that is, the maintenance of the condition of free from disease.

Therefore, the process of executing and managing the Plan, in an intersectoral vision, needs to be collective, participatory, carried out in different spaces and instances, such as forums, commissions and councils. First, it involves the creation of a coordinating committee or nucleus, formed at central, regional and state levels by representatives of the different stakeholders, supported by a multidisciplinary national scientific committee, in order to address the complex reality of foot-and-mouth disease prevention and seek the best solutions for the problems involved. The process brings advantages, such as the formation of shared and democratic spaces of analysis and decisions; partnerships in network format and greater commitment of the actors.

It will be fundamental to extend the partnerships between the different sectors and social segments, such as community organizations, professionals and companies of technical assistance and rural extension, industries, sector of trade of inputs, education, environment, health, culture, in the three levels of policy organization: national, state and local.

The intersectoral approach as a way of finding solutions to problems, as an integrating element, acquires great importance, not only at high levels of management, but also at the local level. At the local level, where actions are more intense, it should generate spaces for agreements, articulation and partnerships between different sectors, which strengthen private and collective commitments in decision making.

The intersectoral actions of this Plan should seek even greater relationship and integration with other public plans, programs and policies, institutions, organizations and public and private representations, related to the actors and targets of actions, in order to optimize resources, integrate knowledge, skills and promote synergistic relationships.

Especially in relation to the policies and surveillance actions developed and applied to international borders, ports and airports, the exercise of intersectoriality will be essential. The geographical and ecoproductive dimensions and characteristics of the Brazilian borders offer favorable conditions for the irregular entry of animals and risk products into the national territory, with the consequent possibility of introducing diseases such as foot-and-mouth disease. The actions of SVOs in the management of these risks should consider the exchange of information and the integration of structures and actions with the different sectors and institutions that operate in these spaces.

This action will optimize resources and improve the action to mitigate risks of reintroduction of the disease, with greater economicity, efficiency, effectiveness, effectiveness and support of actions. Intersectoral integration must occur from the internal and central level of MAPA, and from this with the Ministry of National Integration, Ministry of Defense, Federal Police, Federal Revenue Secretariat, Brazilian Intelligence Agency, Federal Public Ministry, Federal Council of Veterinary Medicine, among others that are necessary, to the state and local levels (SFAs, SVEs, state and local representations of the aforementioned and other necessary institutions). At the local level, consideration should be given to the existence of other gaps and where animal health problems can also be dealt with other stakeholders, avoiding overloading the official veterinarian with new committees, at the risk of becoming a mere formality. Thus, these professionals should be trained to apply the same fundamentals in their reality, which is provided in the operation related to training.

As intersectoriality presents itself as a strategy that can help in confronting and finding solutions to problems in the field of animal health, transdisciplinarity is an alternative approach in the field of knowledge that complements and can help to solve them. With a short sentence introduced to incorporate the research question, Carlos Matus (1993) emphasizes that science has disciplines, the University has departments, government has sectors, but reality has problems. Thus, animal health organizations should seek reinforcement in the field of knowledge, with a transdisciplinary view, to improve their ability to deal with the complex problems of the reality of animal health.

To this end, establishing partnerships with education and research institutions will also be essential to broaden the power of analysis and resolution of problems affecting animal health, in particular those related to the prevention of foot-and-mouth disease, the causes of which are often not restricted or nor do they originate in the veterinary sciences, but in the economic, social, cultural, educational, ecological and other sciences.

Although only a few actions that are more direct and strongly related to the issue addressed in this operation, listed in Annex I, have been chosen, the fundamentals presented above, in one form or another, reach several other actions planned in other operations, especially those that seek, like this one, to strengthen the interaction between the interested parties with the execution of this Plan.

9.1.2. PROMOTE THE STRENGTHENING OF REGIONAL AND INTERNATIONAL COOPERATION ON FOOT-AND-MOUTH DISEASE

Incidents of foot-and-mouth disease occur in free countries mainly because the infection still persists in several parts of the world, especially in the territories of Africa, Asia and Eurasia, caused by the transmission of six groups (pooles) of genotypes of foot-and-mouth disease virus. In South America, the infection caused by the regional O and A virus genotypes belonging to pool 7, still persists. In addition, the preliminary results of the analysis for the risk of introduction of foot-and-mouth disease in Brazil, from some sub-regions of Phefa, qualified as low or very low merit attention.

In view of the risks of introducing the disease in the national territory due to the various viral types that occur in the world, an important strategy for Brazil will be to reduce it and, consequently, the impacts of an outbreak of the disease, through the promotion of technical cooperation to strengthen control and eradication measures in areas or regions with viral transmission. Thus, by acting on the population of infected animals, it will contribute directly to mitigation of spreading the infection in the affected territories and the risks of introducing the disease in a free country, including Brazil.

Brazil must strengthen its leadership in organizations and foruns, both global and regional, where part of the foot-and-mouth disease prevention strategy can be developed and materialized through debate and international cooperation. In addition, bilateral or multilateral agreements are also alternatives to cooperate with countries that represent a risk of introducing foot-and-mouth disease into Brazil.

At the global level, there are two distinct but complementary entities involved with foot-and-mouth disease that deserve attention from the Brazilian SVO: on the one hand, the World Organization for Animal Health (OIE), which defines sanitary standards for trade in animals and animal origin products, grants the sanitary recognitions free of foot-and-mouth disease, with or without vaccination, and promotes the governance of the world veterinary services, in which the greater Brazilian participation will be of extreme relevance in order to contribute to its strengthening and to progress with the eradication of disease worldwide; and the Food and Agriculture Organization of the United Nations (FAO), in particular through the Global Strategy for the Control and Eradication of Foot-and-Mouth Disease, adopted in Bangkok in 2012, as an effort and commitment by OIE member countries to reduce the impact of foot-and-mouth disease in breeding animals in affected countries and the costs of prevention in free countries, with which the Brazilian SVO should be directly involved. The possibility of adding projects of mutual interest that contribute to this purpose should be considered, taking advantage of the Brazil - FAO International Cooperation Program. It is worth mentioning the importance of taking advantage of the different structures and tools provided by the two organizations to obtain the best results in the prevention of foot-and-mouth disease, such as normatization and standardization of the Terrestrial Code, tools for evaluation of surveillance systems and performance of services (PVS Tool), the network of reference laboratories for foot-and-mouth disease and vaccine bank, etc.

At the regional level, it will be important to further strengthen the institutional relationship with Panaftosa / PAHO / WHO, making maximum use of technical cooperation to continue exercising its regional role effectively, and to contribute to the implementation of technical scoped under the Program, particularly in the implementation of the Technical Work Guide for the last stage of Phefa, approved by Cosalfa. It recognizes the importance of Phefa as a master plan for the eradication of foot-and-mouth disease in South America, coordinated by Panaftosa / PAHO / WHO, which, through the 2011-2020 Plan of Action, establishes guidelines and actions for the execution of national sub-regional programs and.

The actions foreseen in this operation are listed in Appendix II of this Plan.

9.1.3. PROMOTE EDUCATION AND MEDIA IN ANIMAL HEALTH

The term "Sanitary Education" arose from the conjunction of the factors "Education" and "Health", in the process of evolution of the concepts of hygiene and public health, which happened in the beginning of the twentieth century, becoming a cornerstone of preventive medicine and public health, where, for its success, the co-participation of its beneficiaries is considered fundamental (BRITO BASTOS, 1950).

During the 1960s and 1970s, the term "Sanitary Education" began to change in Brazil for "Health Education", following the paradigm shifts in the field of public health and education practice in force at the time. Although with completely different conceptions, the two terms continued to coexist in the actions developed by professionals of various formations. However, the new vision of "Health Education", incorporating its political element, aimed to go beyond simply informing or changing behaviors, but preparing individuals for the full exercise of citizenship, promoting the common good and improving the quality of life of all helping these actors to become capable of transforming society as subjects of history (PELICIOLI & PELICIOLI, 2007).

For Vicente (2009), "Social Communication" is a science that is concerned with establishing efficient ways to evaluate the relationship between the sender, the media and the receiver. Its object is to study the media and its social impacts. The axis of the construction of Social Communication lies in the nuances of each media, in the study of its repercussions in the construction of sociability and in the formation of ideas and values. The author understands that it happens and appears as a result of the action of the means in a concrete space and time, becomes relevant when it arrives at the receiver, receiver of the effects of the communicated message, and repercussions in the consolidation of sociability. He believes that Social Communication is one of the most effective forms of social integration in contemporary societies.

It is noticed that the two themes of this operation interact and complement each other as they focus on the human being and can promote individual and social transformations. They are in constant evolution and have a magnificent potential to influence and contribute even more to the process of changes that are sought in favor of the prevention of foot-and-mouth disease in the new scenario that is configured in the country, provided that they are well and fully applied.

The "Sanitary Education" and only a few instruments of communication were mentioned as part of the Agricultural Defense activities in Article 73 of Decree Law 24,548, dated July 3, 1934, which established:

"In order to make the fight against infectious diseases more effective, a propaganda service, health promotion and education will be organized, so that brochures, flyers, monographs and lectures will be distributed free of charge and conferences will be organized by your technician" (BRAZIL , 1934).

While recognizing their value in combating infectious diseases, they present themselves in a narrow sense and with an advertising bias or single-handed promoter.

With Decree No. 5,741, dated March 30, 2006, which regulated Federal Law 9.712 of November 20, 1998, preserving its original terminology, "Sanitary Education" appears more prominently, conceptualized with a clearer meaning, which allows a broader and participatory process understanding. At that moment, the concept emerges as a new and valuable element, also part of the purpose of the Social Communication, when it is proposed to develop a critical awareness in the target audience. However, the "Social Communication" is not mentioned at any time in this norm.

Complementing the regulations and in a more specific way, MAPA published Normative Instruction No. 28, dated May 15, 2008, instituting the National Program of Sanitary Education in Agricultural and Livestock Defense, with a description of its guidelines and establishing the necessary competencies for the attainment of its objectives in all SVO instances. In this norm, the "sanitary education in agricultural defense" is defined as:

"The process of dissemination, construction and appropriation of knowledge by participants in the various stages of productive chains associated with agricultural activities and by the general population related to animal health, plant health and product quality, agricultural by-products and inputs. "(BRASIL, 2008).

These standards, therefore, constitute the current main regulatory basis on the subject, which guides the Sanitary Education actions of SVOs to stimulate continuous and permanent community participation, both in the construction and execution of sanitary programs, primarily within a constructivist and emancipating the actors involved. However, they lack its full application in the country.

Health Education and Social Communication appear together as a programmatic component of Phefa, indicated for incorporation into national plans, as it considers that the effectiveness of animal health programs can increase if they are associated with educational and media programs, using appropriate methodologies, adjusted to the different realities. They are designed to facilitate community participation by promoting the collective bodies of the different actors involved in the Program, where and with whom their actions can be discussed and promoted, helping to shape individual and community behaviors in favor of healthy and productive livestock. In order to elaborate and execute the component, it recommends a solid planning of the educational process, based on a socio-educational and community diagnosis, and that the actions deployed take into account the main references of the community, especially schools, community centers, associations, health and others.

Among several reference sources, to help preparing public agents, the "Guide to Social Communication and Risk Communication in Animal Health" (Panaftosa / PAHO / WHO, 2007) is a useful tool to be adopted definitively in Brazil. This Guide addresses important new issues that need to be addressed in the new Program, such as the Communication on Animal Health, which is more comprehensive, current and engaging. It considers that the Social Communication can become a strategic resource capable of carrying out a deep and comprehensive social action, which seems extremely relevant to sustain the Program and new sanitary status for foot-and-mouth disease that will be persecuted in the coming years for the country. This guide provides the search for interaction between local knowledge, technical-scientific knowledge and the mobilizing techniques of civil society and governmental spheres; reminds us, for example, of social dialogue to carry out effective actions and collective support, as well as the differentiated and necessary attention given to small producers because of their epidemiological importance in the diffusion of foot-and-mouth disease, besides the need for governments to allocate resources for health education animal and the media.

In addition, it is worth considering what Brückner & Saraiva-Vieira (2010) alert when addressing the topic of communication in the "OIE Strategy for the Control and Eradication of Foot-and-Mouth Disease at Regional and Global Levels" and cite the importance of constant dialogue among different actors in the system and reinforce the need to establish communication links with producers, especially small producers.

In PNEFA's current regulations, the maintenance of Health Education and Social Communication programs is only cited as a strategic measure, without any detail. Therefore, it will need some adjustments in the standard, starting with the terminology to be adopted, so that it can be treated as "Education and Communication in Animal Health", aligning itself with the terminology and its more modern senses. With this, one can also approach the current world concept: "One Health". In addition, Education and Communication in Animal Health need to be treated with an increasing importance, and can start by regulating some minimal aspects that contribute to the breakdown of current paradigms, according to which it continues acting with the idea that only the dissemination of information is sufficient to bring about the necessary changes in individual and social human behavior.

The actions of this Plan for Education and Social Communication in Animal Health intend to break with the traditional models in force, markedly normative and coercive, based on the view of the "Sanitary Authority" as the great holder of knowledge about what is best for the subject, more even to himself, and to everyone in an indistinct way, ignoring that the educational process deals with life histories, beliefs and values and with the subjectivity of the subject itself. These models are strongly marked by the so-called collective strategies, such as mass communication, and are based on vertical initiatives of induction of the actors to the changes of behaviors considered as harmful to the practices considered acceptable (Gazzinelli et al., 2005).

Therefore, it is not possible to reduce the present educational-communicative proposal to simple activities through which the State seeks only to transfer to the other actors in the productive chain - especially the rural producers - a set of established knowledges, of which it is seen as a holder; on the contrary, what is proposed is the use of mechanisms that encourage such actors to exercise their role as subjects of the required actions, to the detriment of the role of "objects of transformation" to

which they are traditionally submitted, through socio-culturally sustainable strategies .

In order to do so, it is necessary to make clear the major objective of the educational program, which, according to Improta (2012), has as its purpose:

"Elaborate and develop educational-sanitary actions, in support of health protection actions, based on the identification of the knowledge, attitudes and behaviors of a population, facing a sanitary problem, diagnosed, sized and monitored by the Sanitary Defense."

In this sense, it is important that all education and social communication policies are based on situational diagnoses that identify the public of service interest in its psychosocial, cultural and economic aspects, as well as its cognitive, affective and psychomotor characteristics, facilitating the ways of approaching and implementing methods and educational means compatible with their reality.

To achieve its results, it will be of the utmost importance that the new policy on education and social communication in animal health be given priority treatment in all instances of the system, be it continuous, broad institutional and geographical coverage in the country, be inclusive, guided by multidisciplinary teams and incorporate the concept "One Health". Only then can it promote the expected individual and social behavioral changes, mobilize all concerned about the common purpose of animal health and, above all, the prevention of foot-and-mouth disease, with positive effects on livestock production and even on people's lives.

Thus, several actions were listed and detailed in this operation, which are included in Annex III of this Plan.

9.1.4. STRENGTHEN SOCIAL PARTICIPATION

The search for the strengthening of social participation as an instrument for articulating democratic mechanisms and instances, and joint action between the public administration and civil society has been the subject of public policies in the country. An example of this is the recent institution of the National Policy on Social Participation (PNPS), whose broad but broad guidelines are compatible with the conception of community (social) participation presented in Phefa. Thus, both instruments were taken as reference in the definition of actions of this operation.

In the process of eradicating foot-and-mouth disease, Phefa evokes the community to participate with its multiple points of view and interests, recognizing the role of the subject in the construction of interpretations and solutions adjusted to reality, especially - but not exclusively - at the local level. In addition, it warns that the lack of social participation can result in the development of plans dissociated from reality and with a low degree of commitment.

In this sense, this Plan guides actions that seek to stimulate and value, broadly and continuously, social participation in the development of the Program. It is necessary to recognize the important contribution of this element in the process of evolution of the Program in Brazil, particularly since the 90's, when the strategic decision was made to eradicate the foot-and-mouth disease of the National Territory, making social participation more decisive and contributing greatly the current sanitary condition and allow him to think now of the final stage of the process. However, forms of social participation need to be improved to produce the effects necessary to implement the Program and generate more and more benefits to society.

Given the complex, comprehensive and dynamic nature of social participation mechanisms, the forms discussed here can not be considered as definitive or self-limiting, but as references to those chosen during the Plan period, which may still be complementary in all SVO instances, by other initiatives of the same nature that can add value to the process.

Based on PNPS's own guidance, the actions contemplated in this Plan do not have the pretension and should not imply the deconstitution or alteration of instances or forms of organization already established and consolidated, to deal with the foot-and-mouth disease theme. Quite the contrary, they should be further exploited and valued, only by adjusting those that are necessary. However, new forms of social participation are considered for the purpose of making the Program's actions increasingly democratic and inclusive.

As instances and mechanisms that can be better used by the SVO, to interact with the community and favor social participation, we mention: the legislative environments, in its three instances (National Congress, Legislative Assemblies and Municipal Councils); Councils and Committees on Rural Development and Health, with their state and municipal coverage extensively capillary in the country; Confederations, Federations, unions, cooperatives and associations of the livestock sector; forums and conferences related to livestock; and any other forms of social organization that can be harnessed by SVO to interact with the community and to address animal health issues, including the prevention of foot-and-mouth disease. No space that allows this interaction can go unnoticed and be dispensed by the public agents in charge of managing the actions of the Program, in any instance of the system. It is important to emphasize, however, the role of the official veterinarian as the leader of the participatory process and more active promoter of actions related to animal health in its area of activity, intervening continuously in the community and mobilizing it around common interests.

The need for a broader and continuous dialogue with small producers should be highlighted, given their fundamental role and significant contribution to the prevention of foot-and-mouth disease. Their involvement is often compromised by the lower organizational capacity and problems they face on a day-to-day basis.

Considering that important dimensions of actions related to social participation, especially those concerning the decision-making process and its strategic delineation at the local level, are described in other components of this Plan, only those with a broader scope, with some innovative character which are not covered by other operations will be emphasized here.

Therefore, some actions, detailed in Annex IV, are foreseen for the purposes above and others, such as: greater interaction of the Program with the national scientific environment, reorganization of the UFs around common purposes, implementation of regular forums at different levels of organization, as open spaces for democratic, broad, active and continuous dialogue with society on foot-and-mouth disease and other animal health issues; interlocution with some representative social bodies, such as the three spheres of the Legislative Branch, the Sector Chambers of MAPA related to the Program; Rural and Health Development Councils, creating an integrated virtual social environment, which favors the transparency of the Program's actions and participation of citizens in their implementation; stimulus to animal health voluntarism, to help those regions with more challenging geographical and cultural peculiarities to the SVO.

Specifically on the action directed to the national mobilization for animal health, a month will be defined in each year in which the whole country will be mobilized and involved in actions for animal health, in the most varied and creative forms and spaces, which will be fundamental for propagate and maintain the topics of interest of this area of knowledge always in evidence in the social environment and maintain the updating of the registers of the producers with the SVO.

9.2 EXTENDING THE CAPABILITIES OF OFFICIAL VETERINARY SERVICES

9.2.1 ASSESSING, REFINING AND STRENGTHENING THE CAPABILITIES OF THE VETERINARY SERVICES

The Terrestrial Code refers to the quality of Veterinary Services and stresses that this quality depends on a series of factors, including the fundamental principles of their ethical, organizational, legal, regulatory and technical nature, which must be observed whatever the political, economic or social situation of the country in question, and thereby permanently inspire confidence among the other Veterinary Services of the world through their international certifications.

PNEFA (Brazil's National Foot and Mouth Disease Eradication Plan) addresses the issue as one of its program components, states that the quality of technical, operational, organizational and financial management of OVSs are essential in order to achieve health goals (eradication and prevention) for Foot and Mouth disease, and that continuous improvement is important in order to ensure efficacy and efficiency of the management; the recommendations of the Terrestrial Code and the available assessment instruments may contribute to this goal.

SUASA, Brazil's Unified Animal Health System, which was set up to promote animal health, surveillance and health enforcement, among other aims, has organized its activities as three levels: Higher/Central; Intermediate; and Local. It also allowed for activities to be decentralized, with other agencies and the private sector playing their roles. This set up a complex network of institutional and organizational inter-relationships which increasingly demands efficient liaison and execution structures in order to keep up the quality standards expected both at national and at international level, and which must constantly be monitored and guided.

Within this complex network, DSA—the Animal Health Department—plays the role of mainspring alongside the state-level veterinary services (SVSs) to perform the tasks of animal health programs and primary certification of livestock products, which depend on suitable conditions and continuous improvement by the Veterinary Services, in order to guarantee quality and comply with the above-mentioned fundamental principles, thus providing the guarantees expected for the certification for which they are responsible.

SUASA lays down the need for general and specific audits to be carried out by Central Level on other spheres of the system in order to assess the working conditions and organization of their activities, compliance with controls and of tasks performed; the aim is also identifying imminent or existing problems and propose corrective action plans to help refine the system.

In Brazil, audits in the field of animal health were introduced in the mid-1990s as part of PNEFA activities, aiming above all the establishment and maintenance of disease-free zones.

Twenty years after the first audit carried out by DSA, despite all the benefits provided by the methodologies applied in that period, a certain depletion and inability to continue enabling the process of continuous improvement needed for Brazil's OVS, and which remain extremely important in the new scenario coming into being with the evolution of the program.

DSA therefore decided to overhaul and change the way it assesses the quality of Brazil's veterinary service for animal health, by beginning to introduce a new methodology that seeks to combine continuous assessment of information from the field, applying a range of indicators, and in situ audits in order to monitor the execution of tasks, identifying possible trends, inconsistencies and problems in order to intervene in a timely, effective and efficient manner.

DSA therefore set up a specific structure to manage the quality and continuous improvement of veterinary services in order to ensure fundamental skills and meet the sanitary and commercial challenges faced by Brazil.

With its new model, DSA also intends to assess the quality of veterinary services in a more far-reaching manner, in order to refine them and influencing animal health systemically, by means of a methodical approach distributed across four components: a) human, physical and financial resources; b) authority, technical and operational capacity; c) liaison with stakeholders; and d) the ability to access markets. Each component comprises a set of critical skills, to which scores ranging from 1 to 5 are attributed. The program to prevent foot and mouth disease is included in the critical sub-skill entitled “prevention, control and eradication of diseases” within “authority, technical and operational capacity”.

Given the importance and the effect of the different skills set forth in the assessment, the Plan has a minimum threshold of results expected from the evaluation of the VSs, as shown in Appendix V, to be taken into consideration in the transition of any area to the free-without-vaccination status. It therefore seeks to adjust the structural and technical conditions of the VSs and mitigate

their vulnerabilities, before attaining the new sanitary condition. However, the Program is not restricted to these transitioning areas, but will adopt the same methodology to reduce possible vulnerabilities that may yet be identified in other parts and which threaten the national sanitary condition. It should be pointed out that by themselves, evaluations of VSs will not produce the desired effects unless their results are taken seriously into consideration as well as the possible weaknesses that have been identified, addressed and corrected, with due priority.

The SVSs will need to strengthen their central-level and state-level audit systems, which are useful for guiding and following their action plans and which contribute towards the continuous improvement of the Veterinary Services.

To achieve this, the activities listed in Appendix VI have been laid down, and it should be emphasized that they cannot be separated from others directly linked to them, with which they will have a cumulative effect on the improvement of the SVSs.

9.2.2 REINFORCING MEASURES TO PREVENT THE INTRODUCTION OF FOOT AND MOUTH DISEASE

PNEFA indicates improvements in risk characterization actions addressed to production spaces that are subject to vulnerability (known as pockets of susceptibility), with the resulting adoption of mitigation measures, and gives guidelines for establishing risk assessment schemes (the risk of introduction of FMD virus) as prerequisites for the consolidation of the status achieved as a zone free of foot and mouth disease, and progress towards the condition of free-without-vaccination.

Risk means the likelihood that an incident will occur and affect the health of people or animals, and if it does, the likely magnitude of its consequences, as a result of existing vulnerabilities, and the exposure of an individual or a population to a hazard (threat). Hazard means the set of factors that can change the health status of an individual or population; while vulnerability means the loss of a given element or set of elements at risk, leading to a breach in protection of health.

Biosecurity is a component of risk management that is normally associated with the identification of vulnerabilities and hazards. According to the Terrestrial Code, biosecurity means a set of physical and management measures intended to reduce the risk of the introduction, establishment and spread of diseases, infections or infestations from, within, or to an animal population (free adaptation). It is therefore important to have a biosecurity plan where all potential pathways for the introduction and spread of diseases into a zone are listed, and the corresponding measures to reduce such risks described.

In the case of foot and mouth disease-free territories, above all those where vaccination is not practised or in transition towards this status, the risk of the introduction of FMD virus should be assessed as a rare event, and even if its likelihood is deemed negligible, the socio-economic impacts of the disease, which are usually severe, must be taken into consideration, and proper attention must be given to the necessary biosecurity measures to mitigate this risk.

The management of biosecurity must therefore focus on reducing the system's vulnerabilities through the adoption of measures to mitigate the risk of introduction of foot and mouth disease virus and also to reduce the exposure of production systems to this agent—in other words to focus risk management on prevention, where it becomes extremely important effectively to separate susceptible populations from those of zones with a special health status, and protect potential sources of infection such as laboratories that handle the infectious agent.

To do this, it is essential to strengthen the surveillance and enforcement procedures on international frontiers, whatever the sanitary status, and on internal national borders between zones of different sanitary status. FMD risk-mitigation actions must similarly be reinforced at ports, airports, bus stations and other possible routes that might allow the agent to enter, and ever-increasing care and caution must be taken when susceptible animals and risk merchandise enter Brazil, and with passengers' baggage checks, the combat against the possibly illegal movements of animals, animal products and animal byproducts across borders, as well as when inspecting the disposal of human food waste to animals, and in the surveillance of areas around laboratories that handle foot and mouth disease virus.

One major challenge to effective surveillance and health protection of Brazil's livestock assets are the country's international frontiers and their geographical characteristics—over 15,000 km in length, with many natural vulnerabilities to the entrance of diseases. To address this situation, the present plan largely counts on the execution of SDA/MAPA's Program for Animal Health Surveillance along the Frontier Strip (Programa de Vigilância em Defesa Agropecuária na Faixa de Fronteira), which considers one of the main foundations for mitigating the risk of the introduction of foot and mouth disease into Brazil. Furthermore, so that it achieves the expected effects for animal health, it is also appropriate to align the plan with the most recent Program for the Integrated Protection of Frontiers (Programa de Proteção Integrada de Fronteiras—PPIF) introduced by the Federal Government by means of Decree No. 8,903, enacted 16 November 2016.

In order to specifically supplement and strengthen the prevention of foot and mouth disease, procedures for approving third-country exporters or potential exporters of susceptible animals and risky animal products to Brazil must be reviewed and adjusted.

The national legislative framework must incorporate the concept of foot and mouth disease-free compartments, and procedures must be defined for their application to certain animal subpopulations when feasible, and when it is desired to protect them from possible recurrences of foot and mouth disease within Brazil, and as an alternative to facilitate animal movements between this level of status and zones that are free without vaccination, in compliance with conditions laid down in the Terrestrial Code.

In order to protect the susceptible population within any foot and mouth disease free zone, above all zones without vaccination, biosecurity measures must be adopted for laboratories that handle the infectious agent, whether internally or externally, because they are real and potential sources of infection. The present plan will not address internal measures, because these are well-established;

rather, it will highlight the importance of these establishments continuing to function within international biosecurity standards, and of their continuous and proper inspection. The plan will restrict itself to actions addressing areas around the laboratories that handle the infectious agent, where FMD-susceptible animals are raised, in order to avoid exposure to the infectious agent possibly escaping from the facilities. In such areas, active surveillance on the part of the OVS will be fundamental, as well as enhanced liaison with the laboratories' technically responsible personnel, in addition to educational actions to encourage the local community to take part in surveillance actions.

To conclude this operation, it is valid to refer once again to the Technical Guidelines for the Final Stage of the Hemispheric Foot and Mouth Disease Eradication Program (Guia Técnica de Trabalho para a última etapa do Phefa), as approved by COSALFA in 2015, which presents several risk management measures and steps to reduce vulnerability to foot and mouth disease, applied to zones transitioning from free with vaccination to free without vaccination, as a supplementary theoretical foundation in the definition of actions for this operation, listed in Appendix VII.

9.2.3 REINFORCING LOCAL ANIMAL HEALTH AND PRODUCTION MANAGEMENT

As mentioned above, Decree No. 5,741 organized SUASA into three levels or spheres: Central & Higher; Intermediate; and Local. At local level, animal health activities are managed by the LVU or Local Veterinarian Unit (Unidade Veterinária Local—UVL), which is the basic veterinary surveillance management structure associated with a geographical area under the responsibility of one or more official veterinarians. The LVU may comprise one or more municipalities and be made up of one or more CSOs—Community Service Offices (Escritórios de Atendimento à Comunidade—EAC), which are the physical structure of the OVS, spread out among municipalities, in order directly to serve the community (MAPA, 2007). An LVU may thus be deemed a "cell" of the OVS addressing animal health aspects.

The local level must pay full attention to animal health within its jurisdiction, managing and carrying out a range of activities in order to do so, such as a livestock register, epidemiological surveillance, certification, control of movements of live animals, animal products and by-products, control of events where animals gather, animal health education, and so on.

The complexity of Brazil's animal health protection system thus demands a great deal of the local level. The system is challenged by increasingly rigorous health demands and by the task of structuring, organizing and accompanying the dynamics of livestock production, where highly technological corporate production systems coexist alongside subsistence or family farming, primary extractivists, indigenous village communities and rural settlements, all of which make local operations difficult. All the demands of the other tiers converge upon this local level of the system, as do all the demands arising out of the community. This scenario shows how complex, challenging and important is local health management.

It is essential to strengthen the local level and this involves significant changes in its operation, and the physical resources and above all the skills of the human resources must be taken into consideration. OVSs must identify and correct deficiencies in their LVUs, providing them with the proper physical resources needed for each type of local circumstance, as well as making trained, motivated and well-oriented staff available to carry out FMD surveillance within the full range of their other activities. It should be pointed out that LVUs have for many years worked with special attention to vaccination, and control of vaccinations takes up a major part of their time. This alteration in the scenario, after vaccination has been suspended, will bring about major changes in units' routine, and may lead them to become busy with other activities that may dangerously suppress FMD surveillance activities. The local level must therefore be given every attention by the other levels of the system and receive capacity-building in order to integrate the new guidelines of the plan into their routines.

In this process, professionals will have to be prepared and guided so as to redirect their efforts, formerly occupied with vaccination controls, so as to strengthen surveillance activities and interact more with the community by means of animal health education and animal health-directed social communication. They must also give value to searching for, analyzing and interpreting data, and using information for the planning and executing of their activities. Continuous support from the intermediate and central levels will be essential: resources, equipment, tools and information will need to be made available in timely fashion, preparing and supervising local teams, defining goals and indicators that enable the orientation of activities and optimization of the use of resources.

The reader will find a description of actions focusing on strengthening the local level in Appendix VIII; they aim above all to:

- Improve the structure and operations of LVUs, above all in more vulnerable areas, by identifying weaknesses, taking corrective measures, and keeping them fully operational;
- Keep LVUs equipped and prepared to rapidly respond to any notification of suspected vesicular diseases, providing appropriate support for the rapid solution of any adverse sanitary event;
- Maintain in a state of preparedness a technical staff for data- and information-driven field actions, executed after planning, and based on risk;
- Equip and maintain LVUs integrated in other levels of the system, and with the community, by using a range of means of communication and electronic applications providing timely information to enable decision-making.

9.2.4 TRAINING OFFICIALS AND COMMUNITY PLAYERS IN ANIMAL HEALTH

The capacity-building of professionals, as well as structural and budgetary aspects, are among the important functional aspects listed in PHEFA to underpin OVSs' management capacities. The quality of OVSs' technical and operational management is a key attribute for preventing foot and mouth disease, and one in which capacity-building plays an essential role. It is also a means of promoting greater integration between the public and private sectors, and among professionals from different geographical

regions, and different training backgrounds, and helps mobilize the community towards the planned objectives.

From this point of view, the present operation proposes actions that seek to ensure that public officials and private enterprise professionals be included in permanent ongoing capacity-building initiatives that address essential topics for their individual or joint tasks to benefit animal health, and by extension prevent foot and mouth disease. Such actions aim to reach out not only to professionals in activity, working in the livestock industry, but also to future professionals still undergoing training in technical and higher education institutions. Mechanisms are proposed to underpin the continuous offering of specific and accessible training to other community stakeholders and thus bring in those who can collaborate with animal health by means of a network of important knowledge and skills for the maintenance of surveillance, prevention and sanitary emergency activities. Training for the community must not be mistaken for social education and social communication activities which are more far-reaching and generic, but must instead be seen as activities aimed at members of the community who have been identified as having specific knowledge and skills, which can be perfected in order to encourage cooperation with the OVS.

All of these actions aim to supplement other actions set forth in other operations within this plan, above all actions concerning inter-sectoral and multidisciplinary aspects, social education and communication for animal health, community participation, and local animal health management.

It will be essential to set up a nationally-managed and independently-funded National Continuous Animal Health Capacity-Building Program to enable nationwide promotion, standardization and optimization of training initiatives deemed essential for animal health defense, without prejudice to other supplementary state level and local level training initiatives. This program should be executed with the due support of ENAGRO (Brazil's National Agricultural/Livestock Management School—Escola Nacional de Gestão Agropecuária), under technical guidance from DSA. It will have to define the different aspects involved, such as the target-audience, recruitment and training of instructors, reference guidelines for the planning of teaching materials and the course content, the actual preparation of the material, the purchase and dissemination of the reference teaching materials. There must also be provision for regular national events for the continuous exchange of experiences and definition of improvements to be made to the Program, for the regional and international liaising between professionals, and between other community players. Furthermore, the program must define criteria for the continuous selection of professionals for international training initiatives so as to bring in knowledge and expertise that is of interest to the Program.

An annual schedule of specific training sessions must urgently be defined so that suspected vesicular diseases can be responded to, with emergency drills for Foot and Mouth disease: these are aimed with priority to the most vulnerable settings and those areas in transition to the status of FMD-free without vaccination; they must aim to involve neighboring countries. To do this, the existing—updated—manuals must be the basis for the content to be taught, and the Central and Intermediate levels involved in the Program must plan the curriculum jointly.

One opportunity for the immediate capacity-building in vesicular diseases for private sector professionals is to take advantage of training offered regularly by other official animal health programs, such as that which is demanded for registration or training of OVS officials. The course content should therefore be updated so as to include an approach to vesicular diseases, above all as regards the notification of suspected cases and the prevention of Foot and Mouth disease.

Furthermore, to be applied nationwide, it is urgent and feasible to use the available technological resources and offer training by Distance Education and free virtual learning platforms. Platforms will allow a basic digital technical library on Foot and Mouth disease to be created thus providing professionals in the field with access to the content. Additionally, in order to achieve the goals, management and monitoring mechanisms need to be set up for the training initiatives.

Finally, a long-lasting policy should be developed to promote technical cooperation between the OVS and other entities that can contribute towards the training and capacity-building for professionals and other players in foot and mouth disease prevention activities: Panaftosa/PAHO/WHO, veterinary medicine schools and technical agricultural teaching institutions, research and rural extension institutions, Brazil's National Rural Apprenticeship Service (Serviço Nacional de Aprendizagem Rural—SENAR), the federal and state level veterinary medicine councils, veterinarian Class Associations, farmers' unions, food business unions, and non-government organizations.

In order for this to happen, a set of actions has been defined and described in Appendix IX, to be executed during this Plan.

9.2.5 UPDATING THE LEGISLATION AND OPERATIONAL PROCEDURES ADDRESSING VESICULAR DISEASES

The Terrestrial Code considers legislation an essential element so that VSs have the necessary authority. Legislation is also a prerequisite to ensure the quality of the VS's activities, while it supports good governance and provides the legal framework for all key activities of the Veterinary Services. It provides a basis so that competent authorities can fulfill their obligations. However, the Terrestrial Code recommends that the legislation should be suitably flexible to allow for judgments of equivalence and efficient responses to changing situations.

For PHEFA, actions to find foot and mouth disease—because of the disease's characteristics—demand highly specific and timely compulsory measures to be taken with well-defined responsibilities if they are to be effective. Such actions must be underpinned by a minimal legal framework that supports technical actions; they must be obeyed and executed by the community. PHEFA also indicates several principles for drawing up the legal basis.

The set of standards and procedures drafted and published by the central level and intermediate levels of SUASA are essential

instruments to support the activities of animal health protection and must complement each other and be continually updated so that there are no conflicts and so that the expected effects are achieved.

Much of the legal framework and the bulk of the operational procedures in force in Brazil were drafted in a different sanitary context where vaccination predominated as the foremost strategy.

To meet the new demands, the Program's legal basis must be reviewed, beginning with the federal legislation, then passing to the state legislation, in order to keep it all harmonized and up-to-date. The basic concepts and procedures must be adjusted to the Terrestrial Code, which is itself constantly updated, and to Brazil's intended new FMD status. Adjustments are to be made above all to the maintenance of the livestock register, to controls of internal and external movements of animals, animal products and byproducts, to the process of analyzing and classifying areas at internal and external risk for foot and mouth disease, to the handling of foot and mouth disease virus in biosecure laboratories, to the use of vaccination, to the process of acknowledging free zones and zones with restricted status, and to the application of the concepts of a containment zone and of compartmentalization, to name a few.

The revision of the legislation therefore necessitates a baseline survey of the Federal and State legislation that has a direct or indirect effect on the program, so as to identify deficiencies and incongruities that may jeopardize the effective and efficient execution of activities. However, this revision, depending on the situation, may lead either to simple changes to sections of the legal instruments in force, or to their complete revoking. At the federal level, therefore, priority must be given to revision of the infra-legal instruments listed below, without prejudice to other revisions that may become necessary in the course of the execution of this Plan:

- Ordinance no. 194, dated 29 November 1994, which set up Coordination Commissions for Livestock Circuits;
- Ordinance no. 50, dated 19 May 1997, and Ordinance no. 4, dated 21 January 2000, both of which approved criteria for classifying levels of risk for foot and mouth disease in Brazil's states;
- Normative Instruction no. 44, dated 2 October 2007, which brought in general guidelines for the eradication and prevention of foot and mouth disease in Brazil;
- Normative Instruction no. 53, dated 23 November 2007, which recognized and consolidated the sanitary situation concerning foot and mouth disease in Brazil's states.

Legislation at state level must also undergo assessment and review, with priority being given to those states making up the FMD-free zone without vaccination, so as to update all of their legislation, correct possible distortions, and harmonize it with the federal legislation.

The program's operational manuals must also be updated, published and distributed to be the basis for activities and for capacity-building throughout Brazil. Among these manuals are:

- Contingency plans for foot and mouth disease—tactical and operational level—volumes I and II;
- Veterinary surveillance manual for vesicular diseases;
- The Manual containing “Guidelines for Inspecting the trade of Foot and Mouth vaccines and to control and evaluate the stages of vaccination”.

However, it will be fundamental in this operation to introduce a definition of a "case" for differential diseases of foot and mouth disease.

Some actions have been set forth in Appendix X of this Plan to achieve these objectives.

9.2.6 STRENGTHENING THE ANIMAL HEALTH EMERGENCY RESPONSE SYSTEM (PREPAREDNESS, UPKEEP, APPROPRIATE RESPONSE)

OIE/FAO's Global Foot and Mouth Disease Control Strategy (OIE/FAO, 2012) highlights the availability of effective emergency response mechanisms such as a national contingency plan, emergency teams and drills, as increasingly important supporting elements as the struggle against the disease progresses.

PHEFA likewise indicates the strengthening of the health emergency system and the availability of contingency plans as elements necessary for the maintenance of free zones.

OIE also lays down—as a prerequisite for the recognition, restoration and maintenance of disease-free status among member countries—the detailed description of emergency plans to address possible outbreaks of foot and mouth disease.

Health emergencies caused by foot and mouth disease are a complex set of activities involving an intricate network of technical, political, economic and social aspects. The correct execution of emergency response actions therefore requires planning and definition of all aspects involved so as to set up an organized control, management and response system.

Brazil has worked to remodel and strengthen its National System for Agricultural and Livestock Emergencies (Sistema Nacional de Emergências Agropecuárias—SINEAGRO). SINEAGRO sets forth different levels of action (the political and administrative level, and strategic, technical and tactical and operational levels) and takes into consideration not only the definition of temporary command structures for emergencies, but also the organization and maintenance of permanent structures for coordination, planning and preparation, so as to maintain, evaluate and validate the capacity and preparedness of emergency responses.

FN-SUASA (Brazil's National Force of the Unified Agricultural Health System) was set up as part of SINEAGRO by Decree no. 8,762, enacted 10/05/2016; the team is made up of multidisciplinary public officials and private players, specially trained to be called upon and to respond whenever an emergency situation is detected in Brazil, or even in other exceptional cases yet to be defined by MAPA. It will be an important enabling measure, when this part of the system has been consolidated, for correctly facing possible animal health emergencies in Brazil.

Another part of SINEAGRO will be a subsystem entitled the Brazilian System for Veterinary Surveillance and Emergencies (Sistema Brasileiro de Vigilância e Emergências Veterinárias—SISBRAVet), which will have a more direct and specific effect on animal health: it represents the entire field-based organizational and operational structure to address animal health emergencies, and reports to, and is coordinated by, DSA with its complex set of technical and operational measures. SISBRAVet will be organized so as to involve the effective decision-making and participation of the top political and administrative echelons of the Brazilian VS, who will be responsible for cross-institutional liaison, internal coordination and definition of technical and operational strategies, delegating responsibilities, conferring autonomy and underpinning the VS so as better to handle animal health emergencies in accordance with specific plans. SISBRAVet will coordinate and maintain properly-drilled technical groups that possess the experience and specific training in handling animal health emergencies, to be called upon in a timely and organized fashion during health emergencies or in the face of imminent risk.

It is therefore indispensable to strengthen and consolidate SISBRAVet, with its infrastructure, standards, plans and scheduled capacity-building activities, in order to maintain the sanitary condition to be achieved in the near future, particularly Brazil's FMD-free zones with without vaccination. The entire chain of command and coordination with other government sectors and with the private sector must therefore be fully defined so as to enable the proper response and rapid containment of possible foot and mouth disease occurrences. It will also be essential to publicize and share the organization of the system and its contingency plans among stakeholders in order to enable a rapid, coordinated and effective response to emergencies, minimizing economic and social impacts.

In addition to those aspects, there are several others that pervade the Plan's emergency system and other operations. Brazil needs to have access to a bank of foot and mouth disease antigens to provide support in emergency situations. The topic has been discussed within COSALFA for some time, and COSALFA will likely take a decision shortly, and this final decision will need to be taken into consideration by the Plan, but there will be a need to find the best pathway for Brazil by examining the topic.

In order to finalize and give the operation impetus, several actions have been described in Appendix XI.

9.3. STRENGTHENING THE ANIMAL HEALTH SURVEILLANCE SYSTEM

9.3.1 IMPROVE THE AGRICULTURE AND LIVESTOCK REGISTER IN THE OVS

In an area recognized as foot and mouth disease free zone where vaccination is not practiced or in those zones transitioning towards this status, the VS must havelegislation clearly making it compulsory for farmers to update their livestock registries regularly, in order not to compromise the registry after suspension of vaccination. The VS must also possess established manuals and procedures, carry out inspections of establishments, and provide regular educational activities for livestock owners.

If Brazilian VS fail to pay close attention to the situation, the cessation of vaccination might significantly reduce opportunities for updating registries and cause incalculable damages to this "knowledge asset" which has been organized over the course of decades throughout the country, at the cost of much investment and sacrifice. The veterinary services should therefore prepare themselves and develop strategies to mitigate these risks as much as possible, before achieving the new sanitary status as an FMD-free zone where vaccination is not practised. This will be essential for the maintenance and enhancement of surveillance for Foot and Mouth disease and other cross-border diseases.

Any slips in the composition of this registry or mistakes made in its preparation and updating can lead to mis-characterization of the agricultural production system and to the taking of mistaken measures in risk management. The appearance or disappearance of livestock farms and herds, without clear and obvious reasons, for example, can cause pernicious changes in the registry and as a result of loss of control of the livestock production space; any livestock activity unknown to the VS may pose sanitary risks to the animal populations of a region since such activities may escape surveillance actions.

According to SUASA, local levels are responsible for creating the livestock registry, and for keeping it permanently up-to-date. Certain basic principles must be taken into consideration by the VS for maintaining an appropriate livestock registry:

there must be a reliable information system that is auditable and continuously monitored by different levels of the system;

standardized, complete and regularly updated information must be kept on the databases;

information technologies must be introduced to allow effective integration of all local levels into the national information system, which must be secure and enable rapid, timely actions to be taken in the analysis and use of information;

to complete the registration of an establishment, and to make such information available within the national information system, the VS must demand that the unit be geotagged.

State registries must compulsorily be available on the Livestock Management Platform (Plataforma de Gestão Agropecuária—PGA), containing standardized up-to-date information that allows searches and timely analyses by the central and intermediate levels of SUASA. No State can conceivably desire to attain the highest foot and mouth disease status without being entirely connected to a national database such as the PGA. Nor could a set of states conceivably advance in the same direction without their registries being fully integrated among themselves; any gaps in communication or loss of most recent information would be highly risky to national sanitary security.

It will be extremely important to review registries and incorporate within them useful data allowing optimal characterization of risk factors and the mapping out of targeted surveillance activities for foot and mouth disease: such information will include animal population; the condition of facilities for handling; the

identification of farmers owning holdings in other states of Brazil or other countries; geotagging of the epidemiological unit, and so on. With the advance in the Rural Environmental Registry (Cadastro Ambiental Rural—CAR), MAPA must liaise with the Environmental Ministry (MMA) and state VSs, so as to progress towards incorporation of their information into the VS livestock registry.

To monitor, perfect and adequately maintain the livestock Registry, VSs must set up a specific sector for support in the Intermediate Level.

In this way enhancement of livestock registries will enable the VS to obtain the necessary mastery of its own geographical space, and to work more securely and effectively in identifying vulnerabilities, so that the task of surveillance for foot and mouth disease can be directed on the basis of risk assessment.

A set of actions to fulfill this operation has been listed in Appendix XII of this Plan.

9.3.2 REINFORCING NATIONAL MECHANISMS FOR CONTROLLING THE MOVEMENTS OF LIVE ANIMALS SUSCEPTIBLE TO FOOT AND MOUTH DISEASE, ANIMAL PRODUCTS AND BY-PRODUCTS

This operation is directly linked to the previous one, and is a consequence of it, because there can be no suitable control of animal movements without good control of the registry, and vice-versa.

Movements of animals, animal products and byproducts are acknowledged to be one of the most important forms of disease transmission. Cited by several authors and emphasized by Serrão et al. (1991), the study and monitoring of bovine movements is deemed a basic element among veterinary activities, above all if one considers that in South America the maintenance of infection and patterns of transmission of foot and mouth disease have overwhelmingly been associated with cattle farming (Panaftosa/PAHO/WHO, 2015).

Green et al. (2006), in their study entitled “Modelling the initial spread of Foot and Mouth disease through animal movements,” realized that by using animal movement data records such as origin, destination, date, purpose, and lot size, network analyses can be carried out to assess what is expected in terms of the risk of introduction of diseases, and the conditions under which a major epidemic could occur and also how it could be efficiently avoided could be proposed.

Thus the characterization of movements of animals and animal products, alongside the strengthening of monitoring and control of such movements, has great value in the characterization of livestock raising in a given region, and is closely tied to the definition of the sanitary risk of the introduction or transmission of etiological agents behind infectious diseases such as foot and mouth disease.

There remain large challenges in Brazil to the control of movements of animals susceptible to FMD caused by the huge variability between production systems and their respective dynamics, the virtually continental size of the territory, and this sometimes makes it difficult for farmers to go to the LVU in order to obtain an Animal Transit Permit GTA (Guia de Trânsito Animal) or hinders the VS's inspection operations. Normal transportation constraints and directly-involved economic factors are important elements that should always be taken into consideration for animal movement control purposes. Because of these circumstantial factors and the importance of preventing the spread of diseases, the movement control mechanisms need to be constantly updated and adapted so as to favor surveillance results.

Each State must therefore in timely fashion seek better to monitor the movements of species susceptible to Foot and Mouth disease, by analyzing the data concerning such movements and inspecting the transportation. Inspection must be prioritized at the critical points that are identified in order to favor regular movement, and to curb or intercept irregular movement.

Online systems must be used, in which data can be continuously and instantaneously transmitted to unified databases at state and national levels. Data can thus be tracked, analyzed and transformed into useful, timely information for use by the several levels of the system. In each state the VS must therefore be prepared to carry out such tasks regularly, above all in those areas where it is intended to cease vaccination.

The database must provide substantive information and respond in timely fashion to searches relating to the network of the transportation flows of susceptible species of a region, municipality, state or country, such as: Which animal species is currently most frequently transported? What is the frequency of this transportation? What final purpose is most important in this transportation? Which prevails: movements inwards or movements outwards? Analyzing longer periods, are movement flows seasonal? Is there evidence to identify locations (farms, municipalities, states, establishments, etc.) where susceptible animals converge? Is there evidence of a region showing dispersal in these flows? According to the evidence found through analyses, which site or sites are the most promising for transportation checkpoints? What are the major routes, origins, destinations, and distances traveled in animal transportation?—and other questions.

Thus taking into consideration the dynamic nature of Brazil's animal production and transportation flows, it will be essential to carry out the measures listed in Appendix XIII, linking the several areas that are involved, with the principal aim of strengthening mechanisms to control and monitor the movements of animals, animal products and byproducts throughout Brazil, at different levels of SUASA.

9.3.3 STRENGTHENING THE NATIONAL FOOT AND MOUTH DISEASE SURVEILLANCE SYSTEM

Quality information obtained from surveillance is an essential component for managing health programs and for targeting prevention, control and eradication measures aiming at diseases of public interest. Therefore, there must be an accurate mechanism for data gathering, applied consistently, repeatedly and with determination, and followed by evaluation, compilation and

analysis, with regular timely preparation of reports, bulletins and maps to communicate information to stakeholders.

The OIE defines surveillance as a systematic process to gather, compare and analyze animal health information, and disseminate such information in a timely fashion to underpin decision-making. Surveillance, for the OIE, plays an important role in demonstrating the absence of disease or infection in a given region, or determining that it is present, and what its distribution is, while also detecting exotic or emerging diseases as early as possible (OIE, 2016).

In FMD combat programs on the South American continent, epidemiological surveillance encompasses concepts of vulnerability and receptivity, both of which are associated with forms of production. The first has to do with the risk of the introduction and spread of the disease; the second has to do with forms of animal production that favor the maintenance and persistence of foot and mouth disease virus, and therefore niches where the disease is endemic (Panaftosa/OPS/OMS, 2015).

Several classifications of surveillance systems are available in the literature. FAO (2014), for example, presents a distinction that takes the origin of the data gathered into consideration and classifies it as active or passive. Active surveillance is where data gathering is designed and triggered by the prime user of the data, while passive surveillance is a process where information on disease events is brought to the attention of the VS without the Service actively seeking it.

Active surveillance is about VS engagement in generating the data it needs, and since this has been planned, there is greater compatibility with regard to the nature and quality of the data. Passive surveillance arises from citizen participation, does not cost the VS anything, and its major advantage is that it offers wide coverage; however the data generated does not always meet the needs of the VS, which has little control over it. Nonetheless it is possible to enhance the quality of the data collected by means of educational processes and incentives for owners and veterinarians, encouraging them to notify the authorities about target diseases.

Surveillance systems may also be classified according to characteristics and approach. By and large, when the focus is on demonstrating the absence of the disease, which is indicated for foot and mouth disease free zones, risk-based surveillance models are more efficient. According to FAO (2014), risk-based surveillance seeks the disease where it is most likely to be found. Risk factors influencing the occurrence of the disease must therefore be identified, and this includes the way in which the population under surveillance is structured and how such risk factors are distributed.

Owing to the key role of surveillance in animal health programs, it is essential permanently to evaluate it and enhance it. The Centers for Disease Control and Prevention-CDC list certain attributes for assessing a surveillance system: simplicity, flexibility, data quality, acceptability, sensitivity, positive predictive value, representativeness, timeliness and stability. CDC states that a surveillance system must emphasize those attributes that are more relevant for the purposes of surveillance (CENTERS FOR DISEASE CONTROL AND PREVENTION, 2001).

In the case of foot and mouth disease specifically, the sensitivity of the surveillance system stands out as an important feature, given that this affects the timeliness of rapid response to the detection of changes in the health condition of the population involved (Panaftosa/PAHO/WHO, 2015).

For risk-based surveillance systems, assessment of sensitivity is made feasible by the FAO's scenario tree method (FAO, 2014).

Finally, the hemispheric FMD eradication program manual, the Guía Técnica de trabajo para la última etapa del Programa Hemisférico de Erradicación de Fiebre Aftosa, highlights the importance of characterization of risks and vulnerabilities to which animal populations are susceptible, so as to underpin the risk-based surveillance process. Having established such characteristics, guidelines for risk management and mitigation of vulnerabilities are given in the above manual, as a reference for VSs in free zones where vaccination is not practised, or in zones transitioning to this status (Panaftosa/PAHO/WHO, 2015).

According to MAPA's manual entitled Veterinary Surveillance For Vesicular Diseases (“Vigilância veterinária para doenças vesiculares”), a good sanitary or epidemiological surveillance system may only be created on the basis of the existence of a structured veterinary care system which didactically represents the entire structure needed for the practice of veterinary surveillance, encompassing the quality and quantity of human resources, physical resources (offices, vehicles, means of communication, consumable materials, material for responding to suspected cases, etc.) as well as political, administrative and legal resources (line of command, hierarchy, legislation, etc.).

For this reason strengthening Brazil's foot and mouth disease surveillance system will first of all entail adjustments to the structural capacities of the units of the system so as to face real needs, capacity-building for the system, ongoing and timely data analysis, the correct identification of risk factors, targeted surveillance based on such risks, appropriate risk management, animal health education, accurate communication of information, and the ever-increasing involvement in surveillance of the community. Many of these aspects will certainly be the consequence of several combined actions laid down in other operations within this Plan.

Although surveillance for foot and mouth disease has been consolidated Brazil-wide, it is essential to assess and understand the sensitivity of this surveillance system, above all in zones transitioning their sanitary status towards free without vaccination, in order to measure their level of confidence in ensuring absence of infection, compliant with Panaftosa/PAHO/WHO (2015).

In order, therefore, to strengthen the entire system for surveillance for foot and mouth disease throughout Brazil, during the execution of this Plan, the measures listed in Appendix XIV were set forth.

9.3.4 STRENGTHENING THE NATIONAL ANIMAL HEALTH INFORMATION SYSTEM

An animal health information system is an organized set of people, elements, data, activities, procedures, flows and resources that interact in order to gather, organize, process, analyze, interpret and disseminate animal health information so as to underpin animal health decisions, activities, strategies and policies. Its overall purpose is to provide suitable understanding of reality in the field so as to underpin the preparation and assessment of animal health policies and activities on a scientific basis at federal, state and local levels.

The animal health information system is part of a surveillance system consisting of the "continuous gathering, processing and analysis of data, the timely production and dissemination of information, so that actions can be taken to control the factors that affect the occurrence of diseases". The "information-decision-action" triad (Brazil, 2005) synthesizes the dynamic of epidemiological surveillance activities and must work properly to keep areas free of foot and mouth disease, especially zones where vaccination is not practised.

It is therefore essential to maintain the system robust and organized by animal health data to better manage risk in these zones. It is therefore essential that data and information on animal health incidents, as well as other animal health-related information, reaches the VS with quality, and portrays as accurately as possible the situation of a specific animal population or geographical space. Timeliness, availability and coverage are characteristics that determine the quality of the information. It is therefore essential to apply the Manual of the Animal Health Information System (Sistema Nacional de Informação Zoossanitária—SIZ), made available by MAPA in order to standardize and enhance the quality, availability and transparency of animal health information of interest to the country.

The data and information base will be suitably provided by records from a range of sources, such as the VS itself, and sectors from the fields of public health, the environment, teaching, research, laboratories and private enterprise. The data and information refer, for example, to the results of inspection and surveillance activities carried out by the VS itself, or from private veterinarian visits, studies carried out by teaching and research institutions, the findings of inspection in slaughterhouses, and the occurrence of diseases controlled by other public institutions.

A suitable animal health information system must thus be part of the VS's organization structure and contain the actors, origins and sources of data and information, in other words must approximate as close as possible to the real situation of the production environment in which animals are raised, containing information reaching the VS for decision-making and animal health actions.

The local level therefore plays an essential role, because it is tasked with actively seeking data from sources, following established processes, standards and flows. It is at the local level that all farmers, private veterinarians and veterinarians of other public institutions, cooperatives, slaughterhouses, dairy farms, universities, research institutes, diagnostic laboratories, veterinary clinics and hospitals, retailers of agricultural products and other possible sources of information and sensors of interest must be registered, and their active participation encouraged.

To do this the OVSs must have excellent outreach, as well as technical resources and fully trained professionals dedicated to planning, coordinating and supervising the gathering, registration, processing, analysis, presentation and dissemination of data, and the preparation of animal health information.

To boost the efficiency and performance of animal health information, VSs must use up-to-date electronic processing resources enabling the collection and processing of large databases, and allowing interaction with other livestock management systems used by official and private sectors. Furthermore, in order to extend capacity and broaden epidemiological analyses, VSs must promote partnerships with universities and research centers that can help in this process.

In order to achieve the goals of this operation, the actions have been listed in Appendix XV.

9.3.5 STRENGTHENING THE LABORATORY DIAGNOSIS OF VESICULAR DISEASES

The laboratory diagnosis of vesicular diseases, specifically foot and mouth disease, plays an essential and decisive role within the program, above all from the perspective of extending the zone that is free of foot and mouth disease without vaccination, because it is a crucial support for the maintenance of regular epidemiological surveillance above all in investigating suspect cases and in emergency interventions. It is essential therefore to strengthen it in order better to face the new circumstances, above all the outreach and the laboratory capacity, biosecurity, the range of the diagnostic scope, and the logistical aspects for the safe transport of infectious samples around Brazil. It is worth remembering that laboratory biosecurity is dealt with in the operation that addressed measures to prevent the introduction of foot and mouth disease into the free zone. It is also worth remembering that a good diagnosis begins with good sample taking. Therefore VS officers from around the country will be specifically trained for this purpose.

Brazil, with its enormous and heterogeneous geographical regions that hinder movement, in addition to the widely varying logistical support and the huge distances between some regions and the reference laboratory (Lanagro/Pedro Leopoldo/MG) challenge the Official Veterinary Service and will increasingly demand measures to strengthen logistical support, to help "shorten" the distances and speed up the safe transportation of samples to laboratories everywhere in the country, thus favoring rapid timely diagnosis. However, and strengthening the need for the VS to enjoy conditions enabling increasingly efficient diagnosis, the following must be taken into consideration: the FMD virus's power of diffusion, the increasing susceptibility of bovine herds after the suspension of vaccination, and the economic impacts caused by the disease.

It is worth remembering that Lanagro/MG is currently the only laboratory in Brazil at biosecurity level NBS 4 OIE that is prepared for the complete laboratory diagnosis of vesicular diseases. Although the laboratory is located in a region enjoying facilities for the reception of samples from everywhere in the country,

it nonetheless lies at a great distance from some regions. As a result it will be necessary to make adjustments to enable specific logistics for more distant regions, which may be costly and in certain cases represent a constraint, or to set up supplementary official laboratory structures in each region of the country in order to carry out preliminary diagnoses that will support the response to suspected cases of vesicular diseases and help with logistics for the transportation of samples to the national reference laboratory.

It is important to highlight the pressing need for VSs to have agreements with transportation companies for biological material, as well as ensuring alternatives from official logistical support, whether at federal or state level, in each state, so as to help meet possible deficiencies, for the immediate and safe transportation of infectious samples to the national reference laboratory. Long-distance terrestrial transportation of this type of material should be avoided unless there is no other option, and should be carried out safely with the appropriate authorization.

However, it is necessary to expand the capacity of Lanagro/MG for the diagnosis of vesicular diseases, helping meet the more critical demands that may arise and maintain efficiency in emergency situations, and this may include automation of the process if necessary. Furthermore, the diagnostic scope must be extended, by introducing the most modern techniques available for the diagnosis of foot and mouth disease and an increasingly accurate and thorough differential diagnosis.

The capacity of other units of Lanagro network to serve the foot and mouth disease serological surveillance program must be adjusted to the new reality, by extending the automatic diagnostic process and incorporating other units into the network, the better to serve regions with a large production potential and strong demand.

Partnership with Panaftosa/PAHO/WHO in order to keep operating its reference laboratory in the Lanagro/MG unit, is essential for Brazil and the entire continent. It is hoped that Panaftosa/PAHO/WHO will continue to collaborate with the national programs of countries in the region to perfect their laboratory technical capacity, the supply of quality biological inputs, the harmonization of procedures and support for the antigen bank.

In order to achieve the goals of the operation, some actions are described in Appendix XVI.

9.4 TRANSITIONING FROM FOOT AND MOUTH DISEASE FREE WITH VACCINATION STATUS TO WITHOUT VACCINATION IN BRAZIL

CRITERIA FOR TRANSITION

The aim of the operation is to define the criteria or minimum prerequisites to be taken into consideration for a safe transition of the zone from the status of FMD-free where vaccination is practised to FMD-free where vaccination is not practised. Essentially this will be a temporary process comprising a range of preliminary and sequential stages, in which results and conclusions concerning whether the zone that is involved has—or does not have—the capacity to make the transition will be reflected in the final decision taken. It is important to remember that the transition process itself will begin with a communication by MAPA to OIE on a decision to cease vaccination against foot and mouth disease in the area involved.

The operation therefore addresses the major steps to be followed before and during the transition in a given geographical area and for a given animal subpopulation, in conditions enabling their physical separation from other populations of animals susceptible to foot and mouth disease that have a different status, and therefore being finally eligible formally to enter the transition so as to obtain a health status of foot and mouth disease free without vaccination. The new condition must be first recognized by MAPA and then by OIE.

Article 8.8.3 of the Terrestrial Code states that, if a Member Country that meets the requirements of a FMD free country or zone where vaccination is practised wishes to change its status to FMD free country or zone where vaccination is not practised, it should notify the OIE in advance of the intended date of cessation of vaccination and apply for the new status within 24 months of the cessation. International recognition of the new status will only occur when OIE is certain that the country has met all the conditions laid down for an FMD free zone or country where vaccination is not practised, proven for a minimum period of 12 months. If the dossier for the new status is not provided within 24 months then the status of the country or zone as being free with vaccination will be suspended immediately. Furthermore, if the country does not comply with requirements for the status as being free without vaccination within three months, it must prove that it meets the requirements to maintain its original status as an FMD-free zone or country with vaccination; otherwise the status will be withdrawn. In this way a member country needs at least 12 months and at most 24 months to request this change in sanitary status for foot and mouth disease from the OIE. First, however, the new sanitary condition must be recognized by MAPA. In short, a country needs at least one year without vaccination and up to 2 years in order to present a request to OIE to transition from being a free zone with vaccination to a free zone without vaccination, as of the date on which it announces complete cessation of vaccination against foot and mouth disease in the area involved.

The Terrestrial Code defines eradication as the elimination of a pathogenic agent from a country or zone (OIE, 2016). This definition contrasts with the recognition of animal health status as disease-free with vaccination, which in the case of foot and mouth disease refers to a population with no incidence of the disease for a minimum period of two years, and where absence of transmission of the infection can be verified for a minimum period of one year. It is thus clear that the health status as being free with vaccination does not deem the disease totally eradicated, because it does not exclude the presence of infected animals, but rather that the agent is not being transmitted within the susceptible population. Only the animal health status Foot and Mouth disease-free without vaccination considers removal of the pathogen from the susceptible population and consequently that the disease has been finally eradicated.

The continuity of a vaccination program accompanied by a long period without an incidence of the disease characterizes a

disease-free population, where transmission of infection is not shown, but where a non-negligible risk of infection leads to a need to mitigate it by maintaining raised immunity in the at-risk population by means of vaccination.

For this reason the process of transition, starting with notification of OIE and cessation of vaccination, requires a series of prior verifications, first of all to ensure that the pathogenic agent has been really eliminated from within the susceptible population, and that consequently the risk of a reappearance of the disease has been completely mitigated; and secondly that the risk of infection by foot and mouth disease virus reappearing in the animals from infected subpopulations has also been satisfactorily mitigated by means of the preventive measures introduced. Such verifications should therefore finally prove that cessation of vaccination will not represent a greater risk of recurrence of infection and that the preventive measures have achieved a sufficient level of protection to prevent reintroduction of the infectious agent into the area involved.

The process seeks basically to confirm four aspects listed below, without prejudice to other aspects set forth in this plan for other operations:

a. Whether zoning has sufficient conditions of biosecurity to maintain the animal subpopulation involved separate from other susceptible subpopulations with a different status;
b. Assessment of the risk of the disease reappearing in the area involved, on the basis of accumulated surveillance information and community studies if necessary, concludes that the risk is negligible or insignificant;
c. Risk management to mitigate the introduction of the infectious agent, in accordance with the correct level of protection established in the country;
d. The ability of VSs to perform early detection, and effective, rapid response against a possible occurrence of the disease has been audited with satisfactory results.

To achieve these stages, several actions have been laid down in the operational matrix in Appendix XVII.

Although the four aspects mentioned and their respective actions are the main focus of the transition process for sanitary status towards being a foot and mouth disease free zone with vaccination, Brazil still needs to consider other equally important enabling and operational aspects, which are addressed in greater detail in other operations of this Plan, such as:

a. Satisfactory level of interaction with stakeholders in the FMD prevention program;
b. A suitable level of international cooperation, particularly with countries bordering on the transition zone, when necessary;
c. Satisfactory results for audits by State VSs involved in the transitional zone;
d. The introduction of vulnerability mitigation and risk management measures for FMD;
e. Updating the legal framework, procedures and capacity-building manuals;
f. Enhancing the mechanisms to update and control the agricultural registry in the zone;
g. The interconnection of livestock registry control systems and movement controls in the zone for animals and animal product;
h. The strengthening of general and specific surveillance systems, and better understanding their sensitivity;
i. The support of funding mechanisms of the VS;
j. The strengthening of the diagnostic network for vesicular diseases and differentials;
k. Access to antigen and vaccine banks guaranteed for health emergencies;

To help understand the process of sanitary status transitioning, the main criteria are organized in Figure 7.

GEOGRAPHICAL ORGANIZATION FOR THE TRANSITION

To enable a better understanding of the transition process, the states of Brazil have been organized into five groups, herein called blocks, described below and illustrated in Figure 1.

a. Block I – Amazon region: Acre and Rondônia
b. Block II – Amazon region: Amazonas, Amapá, Pará and Roraima;
c. Block III – Northeast region: Alagoas, Ceará, Maranhão, Paraíba, Pernambuco, Piauí and Rio Grande do Norte;
d. Block IV – Central region: Bahia, Distrito Federal, Espírito Santo, Goiás, Minas Gerais, Rio de Janeiro, São Paulo, Sergipe and Tocantins;
e. Block V – Center-South region: Mato Grosso, Mato Grosso do Sul, Paraná, Rio Grande do Sul and Santa Catarina.

Initially, in order to achieve this organization, the following aspects were taken into consideration: the results of spatial distribution analyses for herds susceptible to foot and mouth disease, and animal movements within Brazil from 2014 to 2015; the interdependence between animal movements; and the application of a community detection algorithm in complex networks. The study was carried out by the University of São Paulo's Veterinary Medicine and Husbandry School, with the support of MAPA, State-level VSs, Brazil's Confederation of Agriculture and Livestock (Confederação da Agricultura e Pecuária do Brasil—CNA), the National Trade Union for the Animal Health Product Industry (Sindicato Nacional da Indústria de Produtos para Saúde Animal—SINDAN), the Brazilian Association of Zebu Cattle Breeders (Associação Brasileira de Criadores de Zebu—ABCZ) and the Brazilian Association of Beef Exporting Industries (Associação Brasileira das Indústrias Exportadoras de Carne—ABIEC). The animal population by municipality, nationwide transportation of animals susceptible to foot and mouth disease, and animal movements from municipalities lying on international borders in those states with more important livestock activities, were all analyzed.

The adjusted density analyses for the bovine and buffalo populations showed two patterns: a heavy concentration of animals along a strip stretching from the east of the state of Acre to the south of the state of Pará, passing through the state of Rondônia and the North of Mato Grosso; and another which includes the east of the state of Mato Grosso do Sul and a strip from the west of the state of Santa Catarina to the northern-central part of the state of Goiás, passing through the west of the states of Paraná and São Paulo, and the south-west of Minas

Figure 7 - Criteria for commencing transition of status from FMD-free with vaccination to without vaccination

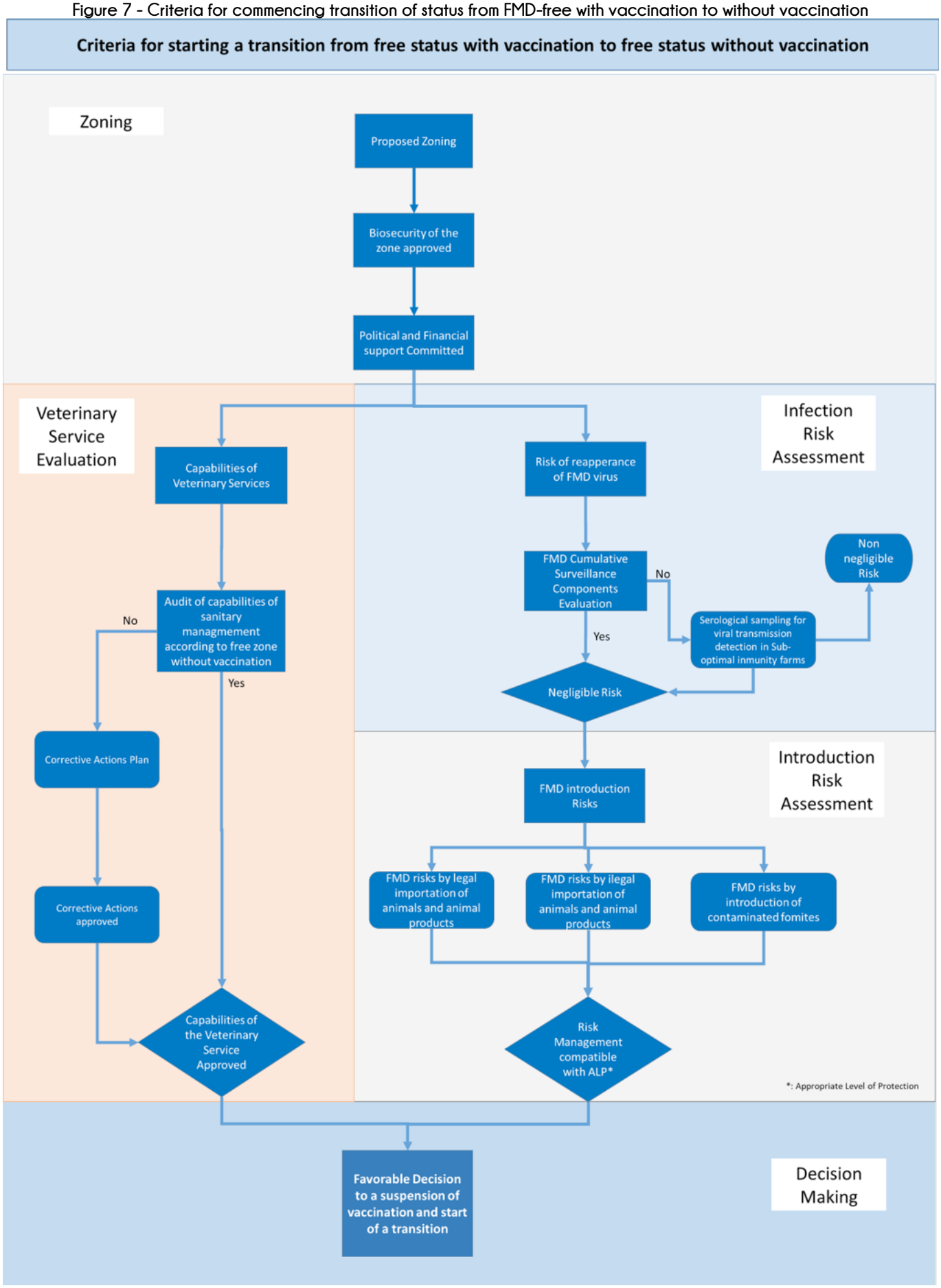
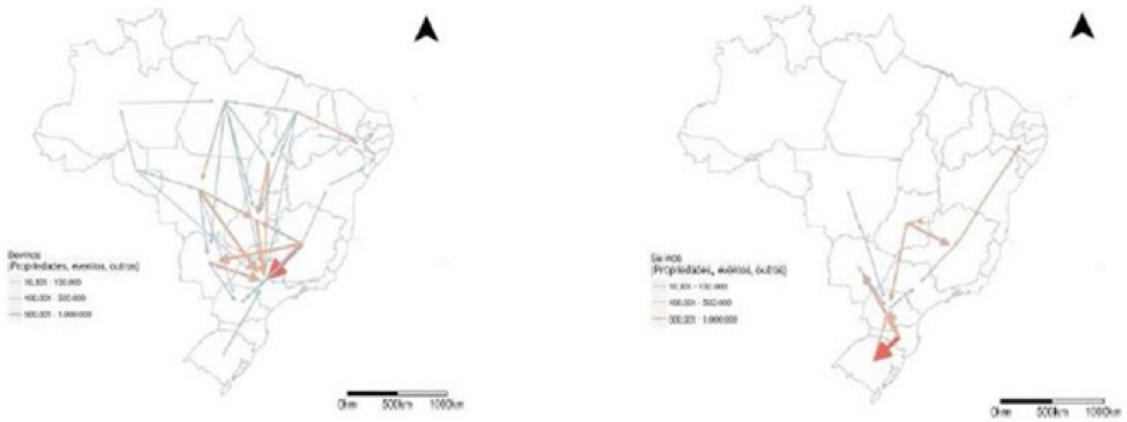


Figure 8 – Main transport movements for cattle and pigs to farms, events and for other reasons, 2014 - 2015.(FMVZ/USP, adapted by DSA/MAPA)



Gerais. The population of goats and sheep (caprines and ovines) is concentrated around the center of Brazil's north-eastern region, between the North of Bahia and Piauí, and in the south of the state of Rio Grande do Sul. Data for pigs show a highly concentrated production system in Brazil's southern region, and more strictly delimited areas in the states of Mato Grosso, Mato Grosso do Sul, Goiás and Minas Gerais.

Transportation movements for bovines and pigs were far above those for other species. Beef cattle movements showed an intricate transportation network involving states of all regions of Brazil, and movements of pigs showed an intense trading network involving the states of the southern, south-eastern and center-western regions. Figure 8 illustrates cattle and pig transportation for other purposes than slaughter.

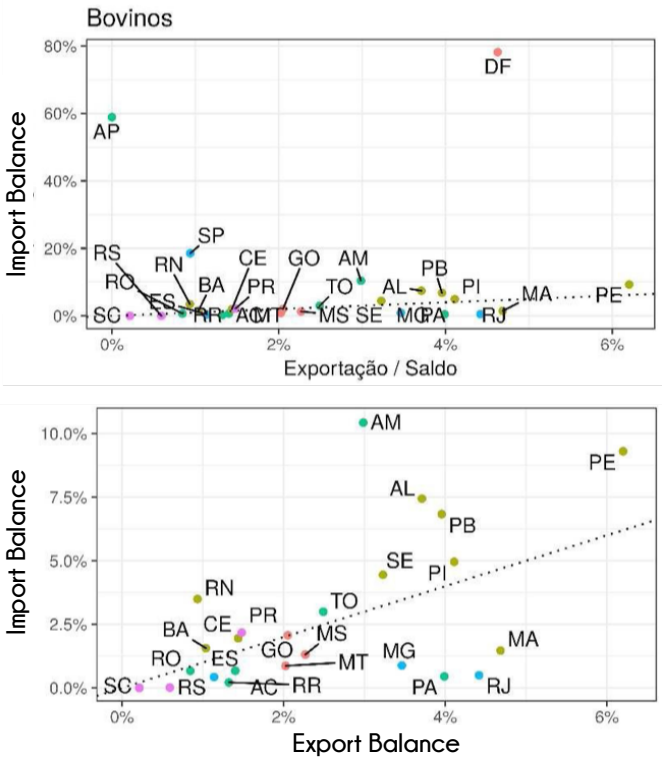
Most states of Brazil show a high degree of internal cohesion, revealed by the large number of communities identified as mesoregions of one state. Thus, most of Brazil's production zones can be defined by the states comprising them, when only transportation movements among regions of the country are taken into consideration.

Based on an analysis of inter-State trade, two sets of indicators were developed in order to determine the importance of this trade for each State: “import and export indicators” and “indicators of dependency and flow of slaughter”, also observed in order to organize the States so as to conduct the transition process as a block. The results are more telling in the case of movements of bovines. Figure 9 shows the import-export indicators for the balance of bovines in each State.

Despite the contribution of such factors for geographical organization, which is defined in this Plan for driving the process of transition, other elements were also observed, for example:

- Production systems and common interests;
- External epidemiological conditions for Foot and Mouth disease;
- Natural geographical barriers;
- Inspection structures on inter-state borders;
- International frontiers;
- The operational capacity of the OVS.

Figure 9 – Import and export of bovines per balance of animals for each State (FMVZ/USP, adapted by DSA/MAPA)



However, the organization as defined will nonetheless require an assessment of the geographical and productive specificities on the borders between the five blocks of States, or even within one or other of the states, at the stage of final zoning for transition. It is important to clarify that a block is the geographical and administrative organization of the States for the regional management of the evolution, while a zone is the delimitation of a geographical area of a country containing an animal subpopulation with a particular sanitary status, in this case regarding Foot and Mouth disease, in which the surveillance, control and biosecurity measures needed for commerce are applied. The limits of the zones may therefore not coincide with the limits of the blocks.

TIMELINE FOR THE TRANSITION

Blocks	UFs	Area for expansion of ZLSV (Km2)	Area %	Bovine and bubaline total number	%	2017		2018		2019		2020		2021		2022		2023
						1° sem	2° sem	1° sem	2° sem	1° sem	2° sem	1° sem	2° sem	1° sem	2° sem	1° sem	2° sem	1° sem
Block I	AC and RO	401.714	5	16.593.000	8	Discussion and approval of the Plan, with renewal of public and private commitments	Implementation of commitments and prior actions agreed			May: communication to OIE June: suspension of vaccination	Seroepidemiological surveillance		Recognition by MAPA and referral of litigation to OIE					
													Evaluation and recognition by OIE					
Block II	AM, AP, PA and RR	3.174.243	38	22.981.102	11		Implementation of commitments and prior actions agreed					May: communication to OIE June: suspension of vaccination	Seroepidemiological surveillance		Recognition by MAPA and referral of litigation to OIE			
															Evaluation and recognition by OIE			
Block III	AL, CE, MA, PB, PE, PI and RN	967.643	11	16.869.270	8		Implementation of commitments and prior actions agreed					May: communication to OIE June: suspension of vaccination	Seroepidemiological surveillance		Recognition by MAPA and referral of litigation to OIE			
															Evaluation and recognition by OIE			
Block IV	BA, DF, ES, GO, MG, RJ, SE, SP and TO	2.134.881	25	85.593.090	39		Implementation of commitments and prior actions agreed							May: communication to OIE June: suspension of vaccination	Seroepidemiological surveillance		Recognition by MAPA and referral of litigation to OIE	
																	Evaluation and recognition by OIE	
Block V*	MT, MS, PR, RS and SC	1.741.550	21	75.201.632	35		Implementation of commitments and prior actions agreed							May: communication to OIE June: suspension of vaccination	Seroepidemiological surveillance		Recognition by MAPA and referral of litigation to OIE	
																	Evaluation and recognition by OIE	
Totals		**8.420.031**	**100**	**217.238.094**	**100**													

*** Although SC integrates this block, its area and herd data were not considered.**

During the implementation of the Plan, the need, possibility and suitability of bringing forward or moving back the individual or collective transition process in any of the organized blocks may be assessed.

10 – FINANCIAL SUPPORT FOR THE PLAN

This Plan can only be performed if there is sufficient timely funding. To achieve its goals, current public and private sector funding and future forms of such funding, will be indispensable.

10.1 PUBLIC FUNDING

Panaftosa/PAHO/WHO (2015) underscores that Foot and Mouth disease is possibly the animal disease with the greatest economic impact on production, owing both to the direct and indirect losses it may cause, and to the massive investments needed to maintain combat programs and to shoulder the cost of surveillance and prevention activities.

Among the fundamental principles given in the Terrestrial Code in order to ensure the quality of VS activities, it lays down that authorities must ensure that sufficient human and financial resources are made available to carry out their activities effectively (OIE, 2016).

Although the SUASA standards hardly address the funding aspects of animal health activities, the Federal Government (through MAPA) and the State Governments (the managers of the system) must ensure continuous flows of sufficient funds for activities in Brazil. Unless they do so, it will be impossible to maintain, much less reinforce and modernize, the structures to operationalize the expected activities so as to ensure suitable, effective sanitary intervention by the OVS when needed. Lack of sufficient, timely financial resources will threaten the whole effort to achieve the FMD-free sanitary status as well as evolving towards the FMD-free zone where vaccination is not practised status that is intended in the next few years.

According to Nogueira (2010), Cost-Benefit Analysis (CBA) has been used to evaluate animal health policies in several regions of the world. Nogueira states that in the decision-making process as to ceasing vaccination in a country or a zone, CBA results may help demonstrate the financial advantages or disadvantages of the maintenance or cessation of vaccination. Thus at some stage in the present Plan it may be appropriate to carry out a new analysis so as better to understand the current situation and base the execution of this public policy upon that.

Nonetheless it may be said at outset that the FMD-free without vaccination status will be increasingly important for international trade and access to the world's leading importing markets for Brazilian animal products—such markets have enjoyed this status for decades. Of course, this is not the only factor influencing this trade, but it plays a crucial role in negotiations. The trade also helps Brazil obtain excellent results for its trade balance, boost economic growth and weather economic crises—such as the one the country is currently living through.

As disease-free zones without vaccination are extended in Brazil, public authorities will spend larger sums—greater than the costs of

the private sector—because increased inspection and surveillance, the responsibility of the OVS, will entail higher costs for the system. The authorities need to be aware of the need to provide sufficient funding, and more than ever, of timely funding, so as to enable the OVS to play its role effectively.

As the Plan gets under way, the need for financial resources to support its full range of actions will be repeatedly cited as a necessity. At present there is no way of estimating such costs; the calculation will be left for the formulation of projects guiding the execution of the plan. At the same time one of the possible obstacles to the execution of the Plan will be the greater burden of actions in the operational matrix falling to the public authorities and financial unavailability. Once again the main conclusion is that it is very important to correctly value this component in the execution of the Plan. And in fact, without sufficient timely funding the Plan would be doomed to failure.

Rather than delve into figures needed for the implementation of the Plan—which would be misplaced in any case owing to its strategic nature—the present chapter aims merely to draw attention to important aspects linked to it that will require the attention of the authorities over the next few years:

Both the downward trend in financial resources earmarked for the execution of the Program in Brazil and the constraints upon its application in recent years need to be halted and immediately reversed if the Program is to prosper, and along with the Program, this Plan and the intended advances towards FMD-free zones where vaccination is not practised;

Current public funding and resource-transfer mechanisms are incompatible with the new situation they are intended to create; they must be reviewed and perfected in order to become truly sustainable, predictable and continuous;

Voluntary transfers of resources to the States must be based upon transparent and well-balanced criteria that take into consideration such aspects as the structure of the OVS, the dimensions and challenges of the production systems and the environment, the epidemiological risks and the importance of the livestock industry in the state and nationwide economies;

Public authorities must increasingly be self-funded, such funds being obtained by charging fees for services or by delegating non-exclusive tasks to third parties so as to reduce their operating costs;

Funding by international financial institutions must be sought, at favorable (or zero) interest rates, in order to pay for the costs of activities that have a regional impact;

Public-private partnerships must be strengthened in order to modernize the system and facilitate access for users;

As a priority starting-point within Brazil—and above all in those States involved in the transition towards FMD-free status where vaccination is not practised—the budgetary amounts adjusted to the objectives and goals defined for execution as of 2018 must be defined and approved on the basis of specific analyses.

SDA (the Secretariat of Animal and Plant Health) and DSA (its Animal Health Department) must in the short term define the amount of resources needed for effective implementation of this Plan so that this can be taken into consideration in the Federal Government's forthcoming Pluri-Annual Plans (PPAs); likewise, the State Agricultural Secretariats, along with their state-level veterinary services, must define their financial needs for the implementation of the Plan, so that these can be taken into consideration within the respective State Government Pluri-Annual Plans (PPAs).

10.2 PRIVATE FUNDING

Private sector co-participation in funding has played an outstanding role since without it the animal health programs would not prosper. By and large this participation has come about through the fulfillment of individual obligations such as the purchase of vaccines, the execution of vaccination programs, diagnostic tests to underpin trade and certification, the issuing of health certification for the movements of animals and animal products. Furthermore, through its trade associations, the private sector has helped the OVS pay for certain structures and activities in which the public and private spheres have a common interest.

This important support is the fruit of the sharing of responsibilities built up over decades to enable the execution of animal health activities in Brazil. It should be pointed out that PNEFA was the mainspring of this model, which has generated benefits, and needs to prosper—although it needs to be remodeled in favor of the public good.

As an example, the purchase of vaccine accounts annually for over U$150m, and is paid for by farmers. Cessation of vaccination will halt these costs and create immediate benefit for farmers, as well as an opportunity for some of the costs to be repurposed towards the investment and running costs needed to maintain sanitary status. Transitioning to an FMD-free zone where vaccination is not practised makes heavy financial demands to strengthen prevention, surveillance and emergency preparedness. If the financial inputs are the responsibility of the public sector alone, there is a risk they may be insufficient, or non-timely, and jeopardize Brazil's sanitary security. Thus in the transition phase the private sector must coordinate so as to define a resource-raising and spending system, bearing in mind the possibility of using the source to support the surveillance and emergency response system in order to ensure maintenance of the sanitary status and enhance the value of the livestock pool.

OIE advocates that OVSs are global public assets because they are in the vanguard of the drafting and execution of animal health policies to control, eradicate and prevent diseases in animals, with a positive impact upon production, public health, food security and the economic development of nations.

It is, however, equally clear that production establishments, herds, food businesses, commercial establishments and foot and mouth vaccine, for example, are private assets that nonetheless generate benefit for society and, therefore, are also of public interest.

The fact is that everything—whether good or bad—that exists or that could happen to public and private assets eventually is of interest to both parties, although each party has its own rights and obligations. Within this context we should remember that foot and mouth disease prevention and the possible occurrence of foot and mouth disease will always affect all players directly or indirectly, above all those who own the physical asset. Governments, society at large, and all players will be the losers in a poorly-addressed sanitary crisis affecting the livestock industry. This should be reason enough for the private sector to continue collaborating with the public sector and continue to fund those actions within its own scope and that interest it. There must also be full involvement of all chains liable to be affected by the performance of actions to prevent or combat foot and mouth disease in Brazil.

In the 1992 updated revision of PNEFA it was sufficiently clear how important private funds are in compensating farmers, with the objective above all of encouraging the notification of suspected cases of the disease. Several ways in which funds could be raised were thought of at that time. The purpose was to supplement the actions of the public sector and make surveillance activities and the eradication of outbreaks of the disease more agile, including compensation for farmers. In the latest revision of the legal framework of PNEFA in 2007, the setting up of public and private financial funds was also mentioned, but now basically as a priority measure for FMD-free zones in order to provide support in animal health emergencies caused by foot and mouth disease.

In a rapid assessment of the situation since 1992, it can be seen that the topic has advanced and in some states of Brazil consolidated its situation: these states increased their reserves for possible emergencies and began to cooperate with the reinforcement of structures and the funding of certain surveillance activities and combat against other animal diseases. However, this issue has neither gone forwards nor backwards in the most part of the states. Brazil has funds in 15 states, of which 11 are private, three are public-private, and only one is public. The accumulated resources from these funds came to a total of R$498,967,605.40 at the end of 2016. However, it should be remembered that there is a concentration of funds in a very few states, which shows that the model has not yet taken on its most successful form.

For this reason, in order to make private funding of the Plan sustainable over the next few years, several aspects need to be assessed and new alternatives found, such as:

Liaison in order to set up a private national fund, without prejudice to already existing state funds, or funds that may yet be set up, based on feasible fund raising mechanisms and diversification that takes into consideration such aspects as: the impacts for each sector and for each region; increasingly less burdensome spending upon vaccines; exports; and disease-related risks. It will be interesting to observe successful examples from other countries, such as appears to be the case in Australia, which set up an agreement for a national fund in which 24 stakeholders took part, including public authorities, farmers' and exporters' associations, and so on. This fund has carefully defined the role of each sector, the ways in which they can be replenished, and how to compensate farmers for a range of diseases.

It is a stimulus to the strengthening and enhancement of private funds already existing in the states, taking into consideration the specificities of each state and the capacity of the segments to contribute;

Guidance enabling funds to participate more in covering the foot and mouth disease surveillance and prevention activities, financially, keeping the bulk of the funds raised for use only in possible emergencies, up to a limit that has been studied technically and established;

Encouraging partnerships among states to disseminate models and functionalities of funds; Providing guidance and encouragement for all commodity chains that may benefit from the prevention of foot and mouth disease, or may be affected by its occurrence, to take part; Greater participation in the OIE's World Fund as a means of financing external actions that will have an impact on FMD prevention in Brazil;

Assessing the use of private insurance schemes as an alternative mechanism for risk management and for protecting private assets.

11 - MANAGING THE PLAN

The success of this Plan will essentially depend on the level of political commitment of the highest echelons of the OVS, on financial availabilities, interaction with and among stakeholders, optimal management of operations, commitment and effort in introducing and following up the actions foreseen.

As demonstrated by stakeholders during discussions behind the initial version of the Plan, it will be important that the Plan be launched by the highest authorities of Brazil's Executive Branch, with the participation of State Governors and State Agricultural Secretaries. Going forward, it will be necessary that liaison occur with State Governments to ensure due political support for the execution of the Plan.

11.1 ORGANIZATION

The Plan will be managed on three basic levels (national, state and local), as demonstrated in Figure 10.

At Central Level, the main management of the Plan will be the responsibility of DSA, supported by the specific technical area responsible for foot and mouth disease, and other areas under this Department will be co-participants. DSA will liaise with other departments of MAPA, with the intermediate spheres of SUASA, and with other institutions and entities involved at an operational level, in order to plan, execute and assess the progress of the whole range of the Plan's actions. Internal and external committees and commissions will also be used, as well as forums organized to

address animal health topics, at which aspects of shared interest will be discussed, and suggestions accepted in order to fulfill the Plan. It will therefore be important that DSA set up a Plan management team and be aided by an animal health consultation committee, to support it in more specific technical matters.

At intermediate levels, plan management will fall to the SVSs, which must also set up a management team, in which each state SFA must participate, being provided with technical guidance by its animal health staff and other partners involved, on a state-by-state level. Similarly to the central level of the SUASA, the intermediate levels must liaise with their relevant internal areas as well as with outside partners in order to plan, execute and assess the progress of the whole range of actions they must execute in the state. They must also likewise use Committees, Commissions and state forums to facilitate access by stakeholders and discuss topics of shared interest that can contribute to fulfillment of the Plan. The Intermediate Levels must seek the necessary operational support in order better to manage their projects.

At Local Level, actions will be the responsibility of the LVUs, which will be given due support and follow up from the intermediate levels. To the maximum extent possible the LVUs must seek to be present in the heart of their communities by means of Local Councils and Committees, in order to encourage greater social participation in the performance of their activities, and disseminating the ideas behind the Plan. In order to do this they must keep up-to-date with the execution of the Plan at all the other levels.

In order to achieve the goals, a manager or managing team for the plan must be defined at Central and intermediate level, and this team must possess the know-how concerning health programs and have the correct profile to manage projects, while it is the responsibility of central and intermediate levels to build their capacity for the correct execution and dissemination of the content of the Plan.

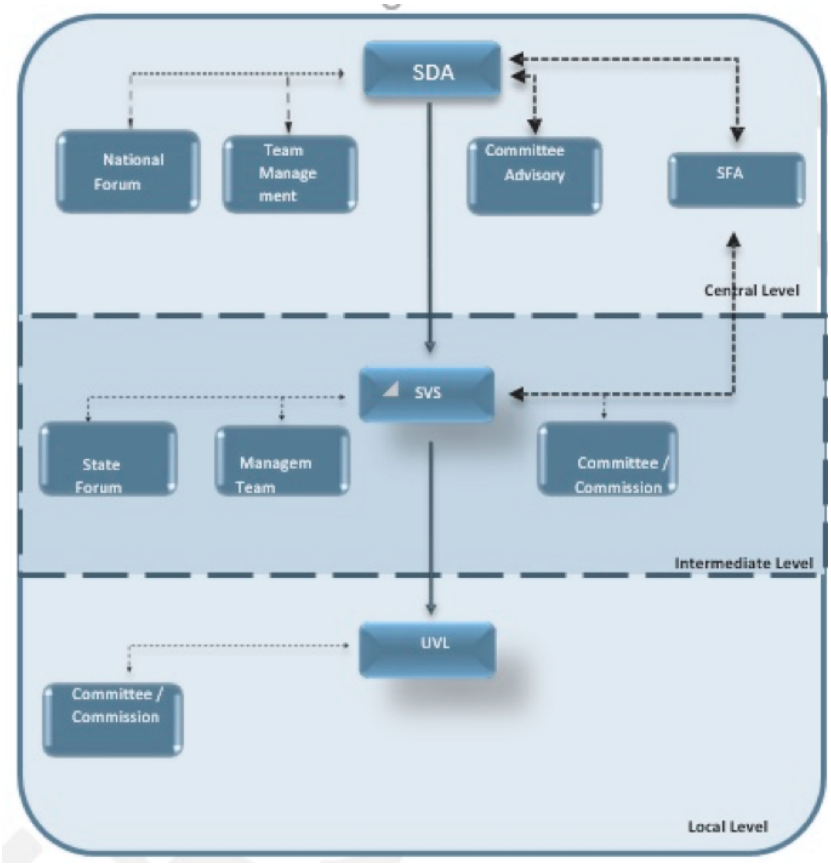
11.2 MONITORING

Management must be driven by the criterion of effective executed operations and actions. Effective assessment of the fulfillment of actions and of the results achieved, as well as of the need for revision and timely adjustments to the scope of the established goals and objectives will be enabled by monitoring of indicators and routine in-the-field checks.

Before that, however, the Plan must have the management organization indicated above. The bulk of this organization already exists, since it coincides with the organization of SUASA itself. The supplementary structures are still lacking and must be organized quickly.

A good IT system for project management will be essential and must provide the necessary information for due assessment and monitoring of the plan in timely, reliable and uncomplicated fashion.

Figure 10 – Organizational Schema for the management of the Plan



DSA must provide the necessary operational support, with trained staff, appropriate methodologies and project management tools in order to support the responsible technical personnel in optimal management of the Plan. Using the available structure and supports, the technical team will perform daily management and have access to information about nationwide execution. To do this, it will permanently interface, on a technical level, with other related areas within DSA, SDA, SFAs and SVSs, whenever necessary.

Because MAPA is legally responsible for overseeing actions performed at other levels of SUASA, it must use this tool to follow up, assess and control activities. DSA will receive the support of relevant technical areas of the SFAs to carry out this activity. Supervisions will focus on those operations that have the greatest impact on the execution of the Plan, and will seek proper fulfillment of timetables and of the scope of the established goals. DSA will train those personnel involved, and define the pattern, flow, frequency, and means of transmission of information, in order to enable rapid and transparent understanding of the results as well as timely and effective interventions.

Plan-related topics within the scope of DSA will be put before the Animal Health Consultation Committee every six months, or whenever necessary, for monitoring and opinion. The Committee will support DSA in the national management of the Plan, pointing out priorities and helping construct feasible alternatives for the fulfillment of activities, with the correct achievement of objectives and goals. In performing its duties, the Committee will take into consideration priorities indicated at regional and state level, helping make the management of the Plan a two-way process.

DSA will further be supported by formally constituted State-Group Coordination Commissions—SGCCs (Comissões de Coordenação dos Grupos de Estados—CCGEs) in order to address shared regional issues at any moment.

State Forums will be organized annually, and coordinated by the respective SVSs and SFAs, to discuss and put forth opinions on the execution of the Plan in each state.

To conclude, a two-yearly national forum will be organized, and coordinated by DSA, in order to discuss and put forth opinions on topics of the greatest relevance and that have a national impact. That Forum will be a moment of supreme national integration on behalf of the execution of the Plan. The Forum can be held alongside other events of the same scale so as to make best use of the structures, and tap into the participation by interested sectors.

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APPENDICES

APPENDIX I

Operation: Promote inter-sectoral and transdisciplinary actions focusing on FMD								
Expected result: an inter-sectoral and trans-disciplinary system for Foot and Mouth disease issues, set up and organized with the effective participation of stakeholder sectors.								
Indicator of operation: The total sum of trans-disciplinary actions executed within the Plan annually								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Set up intersectoral Plan-Management Team	Legal act; Human resources, financial resources;	SDA; DSA; CONJUR.	MAPA; National Forum of State Agricultural Secretaries; FONESA; Private sector	National	Intersectoral management team, active and participating in national management of Plan.	3 months	Timeline for setting up team compared w forecast	Lack of trained human resources to assume intersectoral management; Definition of suitably representative participants; Lack of interest from participating institutions; Bureaucratic procedures;
Set up intersectoral Plan-Management, Coordinating State Teams	Legal act; Human resources, financial resources;	SVSs	DSA; SFAs; SVS; Private sector	State-level	Intersectoral management team, active and participating in national management of Plan.	6 months	Percentage of States having an established Intersectoral Plan Management and Coordinating Team cf. total	Lack of trained human resources to assume intersectoral management; Definition of suitably representative participants; Lack of interest from participating institutions; Bureaucratic procedures; financial constraints.
Set up a trans-disciplinary Animal Health Scientific Committee	Legal act; Human resources, Financial resources;	SDA; DSA; CONJUR	MAPA; Public/private sector researchers	National	Active Scientific Commission	6 months	Timeline for setting up committee compared w forecast	Lack of available specialized human resources; incompatibility of agendas; financial constraints; bureaucratic hurdles.
Set up and maintain specific online communication so established teams and committees can interact	Specialized human resources; funding; information technology	DSA; CGTI	MAPA; SVSs; Private sector	National	Network set up	12 months	Coordination and management commissions integrated to network	Lack of political will; other priorities; funding constraints;
Debate annual priorities for the Program within Specialized Commissions belonging to federal and state level Legislative Branches.	Meetings; information; media resources	SDA; DSA; SVSs	MAPA; SVSs State Agriculture Secretariats; Parliamentarians; Private Sector.	National	Priorities discussed within National Congress and Legislative Assembly commissions.	10 months	The number of Parliamentary Commissions where Program priorities debated annually vs existing number of commissions	Lack of political prioritization; agenda unavailable.
Discuss annual priorities of Program at related MAPA Sectoral Chambers.	Meetings; information; media resources	DSA;	MAPA; SVSs; Private sector	Location	Priorities Discussed in Sectoral Chambers	6 months	The number of Sectoral Chambers where Program priorities debated in year vs existing number of Chambers	Lack of political prioritization; agenda unavailable.

APPENDIX II

Operation: Promote strengthening of regional and international FMD cooperation								
Expected result: Extend Brazil's overseas participation level in FMD issues								
Indicator of operation: Total number international foot and mouth disease agreements and acts signed								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Formalize legal instruments ensuring uninterrupted support from PANAFTOSA/ PAHO/WHO, within Phefa and Plan frameworks	Cooperation Agreement; Funding	DSA PANAFTOSA top management	SDA DSA PAHO/WHO top management; PANAFTOSA top management	National level, sub-regions of Southern Cone and Amazon	Annual Pluri-annual inter-institutional cooperation agreements executed	120 months	Percentage of Annual Working Plans executed vs. signed	Lack of political will; unavailability of financial resources; Formal demands
Formalize and maintain mutually relevant technical cooperation agreements to support and execute national programs in countries of sub-regions of Southern Cone and Amazon.	Cooperation Agreement; Funding; human resources	SRI DSA	MAPA, MRE; SDA and SRI Secretaries; Service and Technical Team Leads of involved countries	Sub-regions of Southern Cone and Amazon	Cooperation agreement between countries and Working Plans on-going.	120 months	Percentage of Annual Working Plans executed vs. signed	Lack of political will; unavailability of financial resources; Formal demands
Formalize and maintain Technical Cooperation Agreements to strengthen global FMD-control strategy.	Specific legal instrument Funding; human resources	SDA SRI DSA	MAPA/ MRE/ ABC/ OIE/ FAO/ National service heads	World Regions where FMD infection/virus transmission	Cooperation agreement established and Working Plans ongoing in countries or regions affected by FMD	120 months	Percentage of Annual Working Plans executed vs. signed	Lack of political will Other political and technical priorities Lack of funds Lack of personnel
Take part in regional and global discussion of FMD standards and governance for VSs.	Funding Human Resources Media World Wide Web	DSA	FMD-GAH/OIE SCAD/ OIE CVP Private sector	World	Participation in and contribution to annual FMD rules discussions within OIE, CAS, CVP, Cosalfa and Mercosur	120 months	Percentage of VS FMD and governance topics with Brazilian contribution vs. total debated annually in selected forums	Lack of trained personnel; lack of funds; compromise of media communication; lack of technical priority
Take part international FMD forums.	Funding; trained human resources	DSA	DSA SVSs Private sector	World	Brazilian participation in regional International FMD forums	120 months	Percentage of Brazilian participation in international Program-relevant forums	Funding unavailable Personnel unavailable Formal demands

APPENDIX III

Operation: Promote animal health education and social communication.								
Expected result: Animal health education and communications projects and actions prepared and ongoing in all spheres of OVS in the country, harmonized with national guidelines.								
Indicator of operation: Percentage of states with animal health education and social communication programs and projects aligned with national guidelines ongoing.								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Create a Permanent National Multidisciplinary Ad Hoc Technical Group to support this operation.	Specialized human resources; Financial Resources.	SDA DSA	DSA; SVSs; Specialists from partner institutions.	National	Regulated acting Technical Group	4 months	Time remaining for setting up group compared w forecast	Lack of specialized human resources, lack of funding; Lack of political support; bureaucratic procedures.
Prepare and introduce nationwide Animal Health Education and Social Communication Capacity-Building Project.	Ad hoc technical group; Funding;	SDA DSA	DSA; SVSs; Specialists from partner institutions; ENAGRO	National	Project prepared, published and ongoing.	12 months	Actually trained personnel versus scheduled.	Incompatibility of schedules of members of WG; funding unavailable; complexity of issue.
Write a National Animal Health Education and Social Communication Manual, containing guidelines, strategies and other needed elements to assist VSs in states in organizing and maintaining specific programs and projects.	Ad hoc technical group; Funding;	SDA DSA WG	DSA; SVSs; WG	National	National Animal Health Education and Social Communication Manual prepared and published.	12 months	Time remaining for preparing Guide vs. forecast	Incompatibility of schedules of members of WG; funding unavailable; competing activities.
Prepare and promote FMD prevention education campaigns, coordinated by central level of SUASA, using mass communication tools, for several target audiences.	Financial Resources; Mass communication means; Printed Material; Media Material	SDA; DSA.	MAPA; SVS; WG.	National	Educational campaigns prepared and executed.	24 months	Campaigns executed vs. scheduled.	Non-prioritized action; human resources and funding unavailable;
Liaise with the Ministry of Health to promote and insert the curriculum of animal health within the activities of community health agents linked to the National Basic Health Care Plan (Plano Nacional de Atenção Básica—PNAB)	Inter-Ministry meetings; Funding; human resources	Minister's Office; SDA; DSA.	MAPA and MinH State and Municipal Governments; Human health care agents; animal health professionals in the states.	National	Formal, legally-backed inter-Ministry cooperation; Pilot action executed.	36 months	The number of States including animal health content in the activities of community health agents, vs. total	Lack of political will and shared understanding among institutions involved about importance of issue; Lack of funding; Far-reaching network of actors; Complexity of issue.

Operation: Promote animal health education and social communication.								
Expected result: Animal health education and communications projects and actions prepared and ongoing in all spheres of OVS in the country, harmonized with national guidelines.								
Indicator of operation: Percentage of states with animal health education and social communication programs and projects aligned with national guidelines ongoing.								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Liaise with Ministry of Health and Ministry of Education to promote introduction of animal health curriculum within the School Health Program (Programa Saúde na Escola—PSE)	Cooperation agreement; Ministerial Notice; Inter-Ministry meetings.	Minister's Office; SDA; DSA.	MAPA, Min Educ and MinH State and Municipal Governments; Health care Professionals; School communities.	National	Formal, legally-backed inter-Ministry cooperation; Pilot action executed.	36 months	The number of States including animal health content in the curriculum of the School Health Program, vs. total	Lack of political will and shared understanding among institutions involved about importance of issue; Lack of funding; Far-reaching network of actors; Complexity of issue.
Develop and maintain virtual environments for social communication to promote a proper interface between several institutions, levels and social players involved, integrating several different national projects.	Specialized human resources; Applications and other network interfaces.	SDA; DSA; SVSs	MAPA, SVSs, multidisciplinary teams.	National	Social networks and apps developed and maintained.	120 months	Percentage of states integrated onto the social networks developed	Non-prioritized action; funding unavailable; Lack of specialized human resources; Bureaucratic process for hiring and maintaining specialized companies.
Link voluntary funding transfers from the central level to other levels of SUASA, because of Animal Health Education And Social Communication programs and projects set up according to national guidelines.	Human resources; Financial resources; Normative acts Programs and projects prepared.	SDA; DSA.	MAPA; State Governments; SVSs.	National	Financial transfer carried out for social communication and education	120 months	The number of states with voluntary transfer of resources vs. total number with animal health education and social communication programs and projects aligned with national guidelines	SVSs: lack of interest and initiative; Lack of specialized human resources and funding; Specific national guidelines lacking definition;
Create and maintain communications channels to the community, integrating existing ones, in favor of social participation in the Program's actions.	Specialized human resources; Funding; Information Technology;	SDA; DSA; SVSs	MAPA; State Governments; Private Sector	National	Virtual environment set up and SVSs integrated	120 months	The number of SVSs integrated into virtual environment vs. total number of SVSs existing	Lack of political interest & priority; Lack of funding; Internet signal constraints; poor quality IT equipment in operation;

APPENDIX IV

Operation: Strengthen social participation.								
Expected result: Enhanced level of social participation in Program's actions.								
Indicator of operation: Total number of people attending commissions and forums / Total number of entities and organizations taking part in commissions and forums								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Set up SGCCs in Brazil	Legal act; Human resources, financial resources.	SDA; DSA; CONJUR	MAPA; SVSs; State Agricultural Secretariats Private sector	National	SGCCs set up and active	6 months	The number of SGCCs set up vs. predicted	Divergent sectoral economic interests; Lack of interest or political disputes regionally; lack of funding; bureaucratic hurdles.
Set up annual regional and state FMD forums	Human resources; Financial resources; Physical structure for events; Material resources; Dissemination	SFAs; SVSs.	MAPA; SVSs; State Agricultural Secretariats; related state-level public entities; Private sector	Regional / State	Forums staged	12 months	Forums actually staged vs. scheduled for year	Lack of political priorities; lack of funding; failures in dissemination and low-level social involvement; poorly defined theme; bureaucratic obstacles to personnel movements.
Set up annual national mobilization campaign for animal health	Personnel; funding; printed and media material; Internet; events logistics	DSA; SVSs	MAPA; SVSs; NGOs; Teaching, research and extension institutions; private sector	National	Mobilization campaign executed	12 months	Annual mobilization campaigns executed vs. years of execution of Plan	Lack of funding; institutions: lack of interest and involvement; Lack of local involvement. Poor dissemination.
Set up two-yearly National FMD Forum	Human resources; Financial resources; Physical structure for events; Material resources; Dissemination	SDA; DSA.	MAPA; SVSs; Related Brazilian public entities Private sector	National	Forums staged with significant social participation	24 months	The number of attendees per forum	Lack of political priority; lack of funding; poor dissemination; physical space unavailable; Bureaucratic hurdles to personnel movements.
Set up permanent recruiting campaign in voluntary institutions to support Program	Funding; printed material; media material; information technology	DSA	MAPA; CONJUR SVSs; Non-Governmental Organizations—NGOs	National	Voluntary campaign executed	36 months	The number of NGOs in Program	Lack of funding; lack of interest; poor dissemination; local units: misunderstanding and lack of involvement

APPENDIX V

Table of critical components and competencies in the evaluation system for Brazil's veterinary services, with minimum points scored to be achieved for the items assess, applied to zones transitioning from FMD free status with vaccination to without vaccination.

Components	Critical competencies	Item assessed	Minimally acceptable score 5
1. Human and Financial resources	1.1. Human Resources	1.1.1. Quantitative and distribution	3
		1.1.2. Stability of structures, sustainability of animal health policies	3
		1.1.3. Original and continued technical capacity-building	3
		1.1.4. Skills and technical independence	4
	1.2. Physical resources	1.2.1. Premises	3
		1.2.2. Transport	3
		1.2.3. Structure, equipment, access to communication	3
		1.2.4. Information Systems (applications)	4
	1.3. Financial Resources	1.3.1. Resources for investment	3
		1.3.2. Resources for running costs	3
		1.3.3. Animal health funds	3
2. Authority, technical and operational capacity	2.1. Organization structure	2.1.1. Organization structure and internal coordination capacity	3
	2.2. Authority and Quality management	2.2.1. Legal framework, regulations, enforcement of legislation, manuals & SOPs	3
		2.2.2. Organization of processes and units	3
		2.2.3. Supervision and Internal Control	3
	2.3 Technical and operational capacity	2.3.1. Laboratory diagnosis, sample sending	4
		2.3.2. Veterinary surveillance: planning and command thereof	4
		2.3.3. Control of frontiers and borders	4
		2.3.4. Veterinary biologicals (vaccines, antigens and allergens)	3
		2.3.5. Control, identification and traceability of movements of animals (terrestrial and aquatic) and animal products	4
		2.3.6. Control of registry of farmers, farms and animals	3
		2.3.7. Control of animal events and gatherings	4
		2.3.8. Capacity to respond to suspect cases and emergency operations	4
		2.3.9. Capacity for early detection and immediate notification of diseases	4

Components	Critical competencies	Item assessed	Minimally acceptable score 5
2. Authority, technical and operational capacity (cont.)	2.4. Prevention, control and eradication of diseases	2.4.1. Animal health and epidemiological information system (structure, organization and functioning)	4
		2.4.2. PNCEBT	NA
		2.4.3. PNCRH	NA
		2.4.4. PNEEB	NA
		2.4.5. PNEFA	4
		2.4.6. PNSA	NA
		2.4.7. PNSCO	NA
		2.4.8. PNSE	NA
		2.4.9. PNSS	NA
		2.4.10. PNCMB	NA
		2.4.11. PNSAp	NA
3. Stakeholder Relations	3.1. Interaction with the community	3.1.1. Health education and social communication (dissemination and publicity)	3
		3.1.2. Participation with the community and consultation of stakeholders	4
		3.1.3. Participation in consultation with institutions and representations	4
	3.2. Interactions with veterinarians	3.1.1. Training and registration of veterinarians	3
	3.3. Interaction with institutions	3.3.1. Inspection system (food safety and security)	3
		3.3.2. Single Health System (zoonoses, sanitary surveillance, etc.)	NA
4. Access to markets	4.1. Ability to certify for market access	4.1.1. Ability to certify for market access	3

Remark: MAPA's tool for assessing the quality of VSs marks on a scale from 1 to 5 applied to each item assessed, and to which the following generic interpretation criteria apply:

1 point - the item assessed does not exist or is very precarious and has so many flaws that it is ineffective; 2 points - the item assessed exists, however most of its aspects are deficient, and this compromises its performance;

3 points - the item assessed exists adequately, but there are deficiencies that affect, without compromising, its performance; 4 points- the item assessed exists adequately, with a few minor flaws that do not compromise its performance;

5 points - the item assessed exists in a satisfactory fashion and there are continuous actions for innovation and improvement.

The criteria for assessment and indicators for each item are described in greater detail in the above-mentioned tool prepared by DSA.

NA = not applicable

APPENDIX VI

Operation: Assessing, perfecting, and strengthening the capacities of the Veterinary Services								
Expected result: VSs assessed are within the minimum standard established								
Indicator of operation: Percentage of State veterinary services assessed as having the minimum standard vs. number existing in Brazil								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicator of action**	**Critical points of action**
Perform national audits to assess VSs in the priority areas defined by the Program.	Human Resources Funding Databases Meetings; Information Technology; Transport	DSA	MAPA; SVSs Public health Private sector Representation	State-level	Audits performed	114 months	Audits actually performed vs. predicted	Human resource constraint; Funding Constraints; Other Priorities.
Prepare and follow up the execution of action plans, put forward to meet recommendations from national audits in the areas of interest to the Program.	Human resources; Financial resources; Meetings; Transport Audit reports; state-level "supervision" reports	DSA; SFAs; SVS;	MAPA; SVSs; Public health Private sector Representation	State-level	Action plans prepared and followed up	120 months	Completed action plans vs. actually performed audits in areas of interest to the Program within the period of the Plan	Lack of priority for the action; Complexity of the plan to be prepared; Technical and operational limitations of the auditee in preparing the plan; financial constraints

APPENDIX VII

Operation: Reinforce measures to prevent the introduction of Foot and Mouth disease								
Expected result: Risks assessed and mitigated to prevent the introduction of Foot and Mouth disease								
Indicator of operation: Percentage of risks mitigated vs. risks assessed								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Harmonize procedures and strengthen enforcement concerning the feeding of animals in Brazil with food leftovers.	Human resources; financial resources; Legal Instruments; Standard Operating Procedures—SOPs	MAPA SVSs	MAPA; SVS; Infraero; City Halls; Pork producers; Restaurant owners.	National	Procedures assessed and standardized in Brazil.	12 months	Number of states where procedures have been assessed and standardized vs. total number	Complexity of chain of relationships; Landfills not correctly isolated; certain hard-to-reach periurban areas; Bureaucratic Procedures. Difficulty in reaching the countless total number of restaurants in Brazil.
Harmonizing standards and procedures to strengthen surveillance in areas surrounding laboratories that handle FMD virus.	Legal action; Meetings Financial Resources; Human Resources; Standard Operating Procedures—SOPs.	MAPA SVSs	MAPA; SVSs; SINDAN; Private Laboratories; Official Laboratories; Producers.	National	Regulated and harmonized procedures.	12 months	Number of states with harmonized, regulated procedures vs. states with laboratories handling FMD virus	Limited human and financial resources Other priorities compete with action; Laboratories and producers involved in the action lack due engagement. Bureaucratic procedures.
Liaise with other sectors and review approvals procedures of third-country exporters or potential exporters of susceptible animals and at risk material to Brazil.	Legal action; Meetings Human Resources.	MAPA	MAPA, MRE and SVSs Private sector	International	Legislation on the topic reviewed and notified to interested third-countries and international agencies.	12 months	Legislation on the topic updated vs. existing legislation.	Competition with other priorities; Lack of interest and due engagement on part of agencies responsible for topic. Bureaucratic procedures.
Create legal and operational conditions to introduce FMD compartment	Human Resources Legal Act Meetings Manuals	MAPA	MAPA SVSs Private sector	National	Legislation and manuals created that address compartment	12 months	Laws completed vs. number forecast for the period	Complexity of issue Little experience in the topic Established level of priority Competition with other activities
Build a "Vulnerabilities matrix" and apply with priority to frontier regions to help characterize them and underpin decision-making to obviate risk of introduction of foot and mouth disease.	Human resources; IT tool; Standard Operating Procedure—SOP.	MAPA SVS	MAPA; SVS; Universities; PANAFTOSA;	National	Vulnerability matrix prepared and applied with priority to frontier municipalities and FMD-free zones without vaccination	30 months	Frontier municipalities in free zones with vulnerability matrix introduced vs. existing total	Complexity of issue; Lack of interest to develop and apply; large number of towns for implementation; Hard to standardized methodology.

Operation: Reinforce measures to prevent the introduction of Foot and Mouth disease								
Expected result: Risks assessed and mitigated to prevent the introduction of Foot and Mouth disease								
Indicator of operation: Percentage of risks mitigated vs. risks assessed								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Liaise with other institutions and departments of MAPA, to contribute to strengthening of structures and to surveillance and enforcement actions at borders, ports, airports, bus stations and railway stations.	Meetings; legal instruments; financial resources; human resources; cooperation agreement;	MAPA SVSs	MAPA State Governments; SVSs. MIN MD SRF DPF Abin Private sector	National	Strengthened surveillance and enforcement structures, with priority to FMD free zones without vaccination	120 months	Strengthened surveillance and enforcement units at borders, ports, airports, bus stations and railway stations vs. existing total	Large number of institutions to be inter-linked; Multiple institutional interests; competition against other priorities; Financial Constraints; Bureaucratic Procedures; Vast territorial extension and specificities of borders; limited human resources.
Continuously assess and monitor surveillance and enforcement structures and actions at borders, ports, airports, bus stations and railway stations	Audits; Meetings; IT tools; human resources; financial resources; Purchase and modernization of materials and equipment; building, remodeling, extending facilities in high-vulnerability areas; cooperation agreements.	MAPA SVSs	MAPA; SVSs; State Inland Revenue Secretariats Law agents and Highway Police;	Regional	Properly monitored border posts between zones, with good structure and good operation.	120 months	Number of border posts with structure and operations assessed as adequate vs. existing situation	Human re-sources constraints; limited IT resources for inspection posts; Difficult lines of communication to certain posts; Scarce funding; Low level of inter-institutional interaction;

APPENDIX VIII

Operation: Reinforce local animal health and production management								
Expected result: Local Veterinary Units with remodeled local management adapted to the new FMD sanitary status								
Indicator of operation: Percentage of suitable LVUs vs. existing total								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Redefine and standardize local LVU management taking new guidelines to strengthen local animal health management into consideration	Human resources; Financial resources; IT resources; Manual of standardization; Animal health management capacity-building	MAPA SVS	MAPA SVS	National	Manual of standardization for the local animal health management: published and introduced in units	6 months	Percentage of LVUs assessed with local management aligned with national guidelines, per state	Competition with other demands; Action is not prioritized; Lack of expert trained personnel for the action; Financial constraints; complexity of topic.
Set up specific teams at highest level of VS to follow up and provide technical support to local level, above all units identified as deficient	Trained human resources; financial resources; physical resources and materials	MAPA SVS	MAPA SVS	National	Technical support teams for local animal health management set up per state	18 months	Teams in operation vs. teams set up	Lack of political determination; bureaucratic hurdles; financial constraints; Lack of training.
Assess the structural conditions of LVUs and identify possible structural and operational deficiencies.	Human resources Financial resources Database Internal audits and "supervisions"	MAPA SVS	MAPA SVS	Livestock circuit	LVUs evaluated, with individual conditions mapped and followed up	55 months	LVUs evaluated and followed up vs. existing total per state involved	Excess demand; action not prioritized; Large number of LVUs to be assessed and with deficiencies; no availability of trained personnel to evaluate them.
Correct the deficiencies found, in order to strengthen physical structures, human resources and communications, adjusting them to local demands and the desired new animal health condition	Human resources Financial resources Remodeling of built structure Physical and material resources Working Plans	MAPA SVS	MAPA SVS	Livestock circuit	Restructured and strengthened LVUs	60 months	Restructured LVUs vs. total identified with deficiencies per state involved	Financial constraints; Diverging political interests or even lack of political commitment; In the states involved, primary production chain plays small economic role in GDP;
Reinforce LVUs' communication systems and introduce data analysis tools at local level	Financial resources Communications equipment Capacity-building of local personnel	MAPA SVS	MAPA SVS	National	LVUs with reinforced communication systems and data analysis tools implemented	60 months	LVUs prepared for data analysis vs. total LVUs per state	Financial constraints; Communications constraints; Untrained personnel; Lack of follow-up; data analysis tools not available; Individual interest.

APPENDIX IX

Operation: Train officials and community players in animal health								
Expected result: Far-reaching, continuous capacity-building for animal health professionals and community players								
Indicator of operation: Total number of capacity-building events per year Total number of people trained in animal health per year								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Immediately set up annual schedule for training sessions and nationwide drills for response to vesicular diseases	Funding; trained human resources; legal act Websites	DSA/SDA	MAPA SVSs Collaborating teaching institutions Private enterprise professionals	National	Annual schedule prepared and published	4 months	Training events actually given vs. scheduled annually	Trained personnel unavailable; Other Priorities; Financial Constraints.
Links to other official health programs to include content on vesicular diseases in capacity-building already provided for private enterprise professionals prior to VS registration or eligibility	Funding; human resources; meetings Teaching materials	DSA/SDA	MAPA SVSs Accredited teaching institutions Private enterprise professionals	National	Content produced and introduced into training for the purposes of registration and authorization of private enterprise veterinarians	6 months	Courses actually given with additional content on vesicular diseases vs. total number of courses taught in Brazil annually	Availability of trained personnel to prepare specific content Misunderstandings by those involved, and resistance to proposed adjustments Difficulty in addressing a more senior audience
Contribute to preparation and introduction of a National Continued Animal Health Training Program	Human Resources; Financial Resources; Meetings, Conference Calls, Legal Act	DSA/SDA	MAPA SVSs Guest collaborators	Brasília	National program set up	12 months	Percentage of scheduled activities executed	Level of priority given to the matter in spheres of VS Personnel with skill and time to perform the work Financial Constraints; Bureaucratic Procedures;
Encourage preparation of technical cooperation agreements with relevant interested institutions that can contribute to specific capacity-building of personnel	Funding; Human Resources; Legal Instruments; Meetings	DSA/SDA	MAPA SVSs Teaching, research and rural extension institutions CFMV and CRMVs SENAR/CNA Trade associations Private companies NGOs	National	Technical cooperation agreements for capacity-building: signed	18 months	Number of professionals trained vs. scheduled annually	Institutions' lack of interest Financial constraints Curriculum difficulties Bureaucratic hurdles
Develop a virtual environment for Distance Education, including a digital technical library specifically for vesicular diseases	Financial Resources; Specialized Human Resources; It Company; Virtual Platform	DSA/SDA	MAPA SVSs Invited universities	Brasília	Distance education courses on vesicular diseases provided	24 months	Time remaining for introducing Virtual Environment vs. time forecast	Budget constraints Those responsible: lack of interest or prioritization Specialized human resources unavailable, Scheduling difficulties;

Operation: Train officials and community players in animal health								
Expected result: Far-reaching, continuous capacity-building for animal health professionals and community players								
Indicator of operation: Total number of capacity-building events per year Total number of people trained in animal health per year								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Training SVS personnel in epidemiology and animal health information management	Financial resources Human resources with capacity-building Political will and managers' interest Manuals and SOPs	DSA MAPA ENAGRO SVSs	DSA MAPA ENAGRO SFAs SVSs Universities	National	technical personnel trained to manage SIZ and perform epidemiological analyses	120 months	Number of professionals trained vs. scheduled per annum	Lack of human resources in VSs Lack of financial resources Lack of training in epidemiology and SIZ for VS personnel Managers' lack of interest
Publish scheduling, prepare and encourage drills for capacity-building of national and state level emergency group personnel concerning specific planned actions and measures contained in FMD contingency plans.	Financial Resources; Specialized Human Resources; Contingency plans Equipment Working schedule Internet	SDA/MAPA DSA/SDA .	MAPA SVSs Partner institutions Guest VSs from neighboring countries Panaftosa	National	National drills performed.	120 months	Percentage of drills/simulations actually performed in Brazil vs forecast for the period	Lack of funding Competition with other demands Limited trained personnel to work as instructors and in preparing training Non-fulfillment of scheduled drills.

APPENDIX X

Operation: Update the legislation and operational procedures addressing vesicular diseases								
Expected result: National legislation and operational procedures updated								
Indicator of operation: Total amount of new and updated legislation and operational procedures								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Update major federal infralegal basis relevant to the Program	Human resources; Financial resources; IT resources Legislation Meetings	DIFA/DSA	MAPA SVSs Private sector	National	Regulations published	8 months	Number of regulations/norms revised and published vs. scheduled	Level of priority given Human resources constraints Complexity of issues Other interests Bureaucratic procedures
Assess federal and state-level legal framework relevant to the Program and update it	Human resources; IT resources Legislation Meetings	DIFA/DSA	MAPA SVSs Private sector	National	Grounded report	55 months	Legal instruments assessed vs. existing legal instruments	Level of priority given to issue Lack of trained personnel Lack of collaboration by those involved Excess legislation
Publish Contingency Plans for FMD Volumes I and II and keep them up-to-date	Trained human resources Financial resources; Internet Meetings Printers	DSA/SDA	MAPA SVSs	National	FMD Contingency Plan - Volume II - response to FMD emergencies, published and kept up to date	120 months	Updates performed vs. predicted	Funding constraints Bureaucratic procedures Lack of attention to regulations and new technologies Lack of trained personnel.
Review all other existing procedures Manuals, and keep up-to-date, prepare, publish and distribute others necessary and relevant to the Program, in the period	Human resources; Financial resources; IT resources Printers Meetings	DSA/SDA	MAPA SVSs	National	Manuals produced or updated, published and distributed	120 months	Updates performed vs. predicted	Personnel constraints Financial constraints Competition against other activities Level of priority given Complexity of issues Bureaucratic procedures

APPENDIX XI

Operation: Strengthen the animal health emergency response system (preparedness, upkeep, appropriate response)								
Expected result: Emergency system restructured, reorganized and prepared for rapid response to animal health emergencies and to recover sanitary status for FMD								
Indicator of operation: Percentage of responses to occurrences of vesicular disease in 24 hours								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Publish regulations for institutionalization, organization and operationalization of SINEAGRO and SISBRAVET	Human resources; Meetings Administrative procedures Legal acts	SDA/MAPA DSA/ SDA.	MAPA SVSs Private sector	National	Ministerial Regulation containing guidelines and organization of SINEAGRO; SDA legal act setting up and describing the organization of SISBRAVet.	12 months	Regulations published vs. predicted	Availability of trained personnel to draft the regulations Lack of priority for the action
Liaise with the Ministry of Defense (MD) and Ministry of National Integration (MI) to create action protocols so as to formalize, enable and accelerate cooperation between these institutions in animal health emergencies within SINPDEC	Political management Meetings Dispatches Action Protocols.	Minister of Agriculture SDA/ MAPA. DSA/SDA	MAPA MI MD	National	Action Protocol signed by MAPA, MI and MD;	12 months	Protocols signed vs. predicted	Lack of stakeholder engagement and interest Current participation of MAPA in CONPDEC not foreseen
Define and establish rapid efficient system to pass on resources for animal health emergencies by using government resources and public or private funds.	Legal framework; Meetings Administrative Process	MAPA SVSs	SDA/MAPA. DSA/ SDA SVSs Private sector	National	Mechanisms to make resources available for emergency actions and compensations— established	12 months	Stages of process actually completed vs. predicted for period	Complexity of issue Lack of stakeholder engagement Lack of resources Bureaucratic difficulties Financial constraints
Set up proper communication mechanisms among stakeholders in SISBRAVet, to keep contingency plan information up-to-date and make the state of alert predicted for response to animal health occurrences, specifically vesicular diseases, efficient.	Specialized human resources Communications methods e-SISBRAVET.	DSA /SDA	MAPA SVSs Partner institutions	National	Communications mechanisms defined and introduced within SISBRAVet.	18 months	Mechanisms actually established vs. predicted for period	Lack of political decision Lack of interest, engagement, by stakeholder sectors Financial constraints; Bureaucratic difficulties; Lack of trained personnel in institutions involved
Prepare and publish National Animal Health Emergency Contingency Plan with guidelines and organization of command chain to act during, and manage, emergencies.	Specialized human resources Financial resources Meetings Administrative processes Plans.	DSA/SDA	MAPA SVSs Partner institutions	National	National Agricultural Emergency Contingency Plan published National Animal Health Emergency Contingency Plan published	24 months	Time to publication of plan vs. predicted time	Level of priority given Competition against other activities Lack of trained personnel Lack of funding Lack of cooperation agreements with institutions possessing know-how on the issue and interest in cooperating Huge volume of activities.

Operation: Strengthen the animal health emergency response system (preparedness, upkeep, appropriate response)								
Expected result: Emergency system restructured, reorganized and prepared for rapid response to animal health emergencies and to recover sanitary status for FMD								
Indicator of operation: Percentage of responses to occurrences of vesicular disease in 24 hours								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Set up and train a National Group (comprising VS (MAPA & SVS) personnel and partner institutions to manage animal health emergencies, including FMD emergency specialists	Financial Resources Legal Act Meetings Selection of personnel with right profile Training	SDA/MAPA, DSA/ SDA	MAPA SVSs PANAFTOSA Partner institutions	National	Regulation containing guidelines and duties of National Group published; Technical Group set up and trained	24 months	Percentage of group personnel trained	Level of priority given Personnel not available Financial resources not available Complexity of issue
Define and provide access to antigen and FMD vaccine banks to be used in FMD emergency situations	Financial resources Meetings Legal instruments Antigens Vaccines	DSA/SDA	MAPA PANAFTOSA Private sector	National	Antigen and FMD vaccine bank defined and operating	24 months	Percentage of steps of action completed vs. total foreseen	Lack of interest on part of national industry Lack of funding Lack of definition of source of finance High operating costs Bureaucratic difficulties Specialized personnel constraints Difficulties with legal mechanisms
Prepare a module of app e-SISBRAVET to manage animal health emergency information	Financial resources; Mapping processes and information flows in animal health emergencies; Service contract Trained personnel Specialist company; Information Technology;	DSA/SDA	DSA/DAS CGTI Hired company SVSs Partner institutions	National	App with module for animal health emergencies prepared and tested in drills and other training initiatives.	36 months	Percentage of steps completed vs. predicted	Lack of funding Lack of trained technical personnel to develop and ratify app Bureaucratic difficulties Slow process of development of apps within government sphere Complexity of action

APPENDIX XII

Operation: Improve the agriculture and livestock register in the OVS								
Expected result: States with improvements in Livestock Registry assessed and ranked as satisfactory								
Indicator of operation: Percentage of states with livestock registry ranked satisfactory								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Promote improvements in standards of national livestock registry seeking to add useful information for FMD surveillance activities	Human resources Financial resources Meetings Computerized systems	DIFA/DSA	MAPA SVSs	National	Technical report	6 months	Time to improvements vs. forecast	Level of priority given; Financial constraints Difficulties with agenda of invited personnel
Demand setting up of Registry sector or specific team at Intermediate Levels in zones transitioning to a status of FMD free without vaccination, encouraging same measure in other States	Bulletins Meetings Legal Framework Audit	MAPA	MAPA State Governments SVSs	Zones transitioning to status of free where vaccination is not practised	States with Registry support department set up in non-vaccinating FMD-free zones and those transitioning their status	24 months	States with Registry support introduced vs those predicted	Lack of political decision-making Bureaucratic difficulties Financial constraints Human resource constraints
Demand that States transitioning to FMD-free without vaccination status fully computerize their registries and integrate them with PGA	Legal basis Computerized systems Financial resources IT company IT equipment Meetings Audit	MAPA	MAPA SVS CNA	Zones transitioning to status of FMD-free without vaccination	States' databases of registries compatible with PGA data	36 months	Level of digitization of registry Level of integration with PGA	State Registry control system non-existent or incompatible with PGA Insufficient IT equipment Regional Internet difficulties Financial constraints PGA management difficulties
Legally require farmers to update their Registries with VS at least annually in those states transitioning to FMD-free without vaccination	Bulletins Meetings Legal Framework Audit	MAPA	MAPA State Governments SVSs Legislative Assemblies Private sector	Zones transitioning to status of FMD-free without vaccination	Issue regulated in States involved	36 months	Number States where farmers legally obligated to update Registry vs. predicted number	Lack of political interest & decision-making Insufficient mobilization of stakeholders in each State Bureaucratic difficulties
Encourage MAPA to liaise with MMA and OVSs in the states to incorporate the geographical area of CAR into livestock registries	Financial resources Computerized systems Legal instrument Training	MAPA	MAPA MMA and SVSs	National	Livestock Registries with maps of farms	55 months	Percentage of farms from the livestock registry with geo-tagging or map vs. number of farms existing per state	Lack of political will and institutional acceptance Bureaucratic difficulties Limited IT capacity of OVSs Regional Internet difficulties Financial constraints Lack of personnel trained for task

Operation: Improve the agriculture and livestock register in the OVS								
Expected result: States with improvements in Livestock Registry assessed and ranked as satisfactory								
Indicator of operation: Percentage of states with livestock registry ranked satisfactory								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected products**	**Deadline for execution**	**Indicators of action**	**Critical points of action**
Demand thorough geo-tagging of farms with susceptible animals in states that are or will be part of the FMD free zone where vaccination is not practised and in more vulnerable areas of other zones	Human resources Financial resources Digitized Registry Databases GPS Training initiatives Audit	DSA/SDA	MAPA SVSs	Regional	Technical report containing results of database assessments	55 months	Percentage of farms geo-tagged vs. prediction per State	Funding constraints; Lack of political determination; Lack of GPS Lack of trained personnel
Perform annual technical assessments of the livestock registry; publish results; guide and follow-up necessary improvements in the states involved	PGA State databases IT tools for data analyses Trained human resources; Meetings Communications Internet	MAPA	MAPA SVS Universities Private sector	National	Technical report published	120 months	Evaluations performed and published vs. schedule	Level of priority of the action Human resource constraints Complexity of the issue Dependence on co-workers Lack of States engagement The assessed level of inconsistencies

APPENDIX XIII

Operation: Reinforce national mechanisms for controlling the movements of live animals susceptible to Foot and Mouth disease, animal products and by-products								
Expected result: States ranked well for control of national transportation of animals and products								
Indicator of operation: Percentage of states ranked satisfactory for control of transportation of animals and products								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicators of action**	**Critical obstacles to action**
Update national procedures to adjust standards of transportation controls for animals susceptible to FMD, their animal products and by-products	Funding; human resources; meetings Manuals State control systems PGA State- & Federal-level audits	CTQA	MAPA SVS Private sector	National	Standard procedures manuals updated	6 months	Number of standards manuals updated vs. prediction	Lack of interest Level of priority given; Diversity of systems operating in Brazil
Integrate control of international animal movements to that of national animal movements by PGA	Human resources Financial resources IT systems PGA Internet	Vigiagro	MAPA SVS	National	International animal transportation control systems integrated to PGA	12 months	Number of international animal entrance units integrated to PGA versus existing	Lack of political interest & decision-making Financial constraints Complexity of issue System incompatibilities
Strengthen SUASA's intermediate-level animal movement control sectors	Human resources Financial resources IT resources Communications Training Supervision Audit	SVS	MAPA SVS	National	OVS animal movement control units for each state ranked well	18 months	Number of animal movement control units ranked well versus number of states	Human resource constraints; Financial constraints Lack of political decision-making Lack of training Lack of equipment Lack of analytical tools
Regularly perform analyses and characterization of transportation of animals susceptible to FMD in Brazil	Human resources, financial resources; States information systems PGA Database analysis tools Internet Training initiatives	DSA SVSs	MAPA SVS	National	Report characterizing flows of animal movements updated annually and made available on network	24 months	States with annual reports published versus total number of states	Lack of political interest & decision-making Financial constraints Complexity of issue System incompatibilities Internet constraints Level of integration of state systems to PGA Irregular transportation Embryonic enforcement OVS scarce capacity for data analysis
Demand that states' control systems be fully integrated to PGA, above all in zones transitioning to FMD-free where vaccination is not practised	Financial resources; human resources; legal act State control systems PGA State- & Federal-level audits	DSA	MAPA SVS Private sector	FMD-free zone without vaccination and in transition to this sanitary status	Animal movement control systems fully integrated to PGA in FMD-free zone without vaccination	55 months	Percentage of states in transition zone or FMD free zone without vaccination fully integrated to PGA vs. states involved	Lack of political interest & decision-making Financial constraints Technological incompatibility between state systems and PGA Constant changes in PGA database Local Internet difficulties Structural IT constraints

Operation: Reinforce national mechanisms for controlling the movements of live animals susceptible to Foot and Mouth disease, animal products and by-products								
Expected result: States ranked well for control of national transportation of animals and products								
Indicator of operation: Percentage of states ranked satisfactory for control of transportation of animals and products								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicators of action**	**Critical obstacles to action**
Encourage integration of OVS inspection posts to PGA	Financial resources PGA Information Systems Internet Programing resources Supervision Audit	CTQA	MAPA SVSs Private sector	National	Fixed inspection posts integrated to PGA	55 months	Percentage of inspection posts integrated to PGA vs number existing by state	Lack of political interest, decision-making & involvement of actors Financial constraints Internet constraints Lack of equipment and training Restricted operational capacity in States Limitations of PGA
In OVS, set up mandatory animal transportation vehicle registries	Legal action Educational campaigns States' IT systems	MAPA SVS	MAPA SVS Animal transporters Legislative assembly DETRANs ANTT Brazilian Navy	National	Properly registered animal transport vehicles in states Measure legally brought in	55 months	Percentage of registered vehicles versus all existing by state	Non-existent legal basis to make procedure mandatory Lack of interest, engagement, by stakeholders Huge number of vehicles to register Irregular vehicles Control system
Integrate control of animal movements to and from events where animals gather with PGA	Financial resources PGA Internet IT resources State-/ central audits	MAPA	MAPA SVSs Private sector	National	Control of animal movements at events covered by PGA	55 months	Percentage of events where animals gather with data in PGA versus number of events held annually by state	Lack of political interest, decision-making & involvement of actors Financial constraints Internet constraints Lack of equipment and training Restricted operational capacity in States Limitations of PGA
Continuously assess and monitor structure and activities of inspection posts, intervening in timely fashion to protect animal populations free of foot and mouth disease, above all in FMD-free zones where vaccination is not practised or in transition to this sanitary status.	Human resources Financial resources Internet PGA IT tools, Audits; Meetings; Cooperation agreements	CTQA SVSs	MAPA SVSs Secretariats Military and Highway Police forces Brazil's Navy	Zones	Posts assessed and monitored in FMD-free zones without vaccination, and transitioning	120 months	Percentage of fixed posts assessed vs number existing, by year and state	Human resource constraints Human resource constraints Internet difficulties Few posts integrated with PGA Limited operational capacity for monitoring
Expand inspection of movements of animals and products, emphasizing mobile inspections in more vulnerable areas	Trained human resources Financial resources Suitable vehicles Movement control systems Animal movements analysis tools Agreement Cooperation agreements Communication equipment	SVS	MAPA SVSs Federal Police Military Police PRF Animal transporter	National	Number of mobile inspections increased by 100% Brazil-wide by end of Plan	120 months	Percentage of mobile inspections increased by year and state	Human resource constraints Financial constraints Lack of suitable vehicles Failure in management of the activity

(6) Highway and Land

APPENDIX XIV

Operation: Strengthen the national Foot and Mouth disease surveillance system								
Expected result: Enhance the sensitivity of the FMD surveillance system by zone								
Indicator of operation: Percentage of improvement in FMD surveillance system by zone								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicators of action**	**Critical obstacles to action**
Set up a model to provide assessment and continuous monitoring of the FMD passive surveillance system in states, covering, for example: methodology, indicators and frequency of application.	Human resources Financial resources Meetings Surveillance Manual	DSA/SDA	MAPA SVSs Panaftosa Universities	National	Assessment of passive surveillance: model set up	12 months	Time remaining for setting up model compared w forecast	Other priorities Few trained personnel Complexity of issue
Set up more effective monitoring mechanisms and supply of LVUs with necessary materials ("standard kit") for response to the suspected cases of vesicular diseases, and remote support for LVU	Funding IT system Communications system Internet	DSA/SDA	DSA/SDA SVSs	State-level	Mechanisms defined and published	12 months	Number of LVUs with complete kits vs total LVUs in state Number of suspected cases of VDs addressed through remote support vs total number per state and year	Funding constraints Communications constraints Scarce personnel Lack of trained personnel Delays in response Number of demands
Create a model for maintaining characterization of production, risks, and vulnerabilities, to be applied at local level in each state.	Specialized Human Resources Meetings Data analysis tools Surveillance Manual	DSA/MAPA	DSA/SDA , SVSs Panaftosa Universities	National	Model of characterization of production, risks, vulnerabilities: created and published	36 months	Time remaining for setting up model vs. forecast	Other priorities Complexity of issue Funding constraints Limited capacity in the field
Perfect the active longitudinal surveillance system based on risks for FMD-free zone without vaccination and extend to zones transitioning towards this status and more vulnerable zones	Human Resources Financial resources Meetings Specific instruction	DSA/SDA CIDASC	DSA/SDA CIDASC Panaftosa Universities	FMD-free zone without vaccination and in transition	Active surveillance system enhanced and introduced in states involved	60 months	States of zone with new active FMD surveillance system introduced versus states involved	Other priorities Lack of interest, engagement, by stakeholders Limited operational capacity

APPENDIX XV

Operation: Strengthen the national animal health information system								
Expected result: Organized, structured, computerized animal health data system with active participation of information sources.								
Indicator of Operation: Percentage of notified suspected vesicular disease cases addressed by OVS within official regulation deadline								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicators**	**Critical obstacles to operation**
Computerize the SIZ at all levels by e-SISBRAVET, to enable greater flows, agility, quality, accuracy, timeliness of information between different levels	Funding Trained Personnel Information Technology Specialized company Manuals Media	MAPA SVSs	MAPA SVS Private veterinarians Teaching and research institutions	National	SISBRAVET modules developed and introduced in SVSs	24 months	Number of states operating information modules of SISBRAVET vs total number of states	Financial constraints Absent or problematic contracts with IT company Personnel constraints for management and maintenance of system Dependence on integration with other systems Untrained users
Encourage reorganization, restructuring and strengthening of information and epidemiology sectors at central and intermediate levels of OVS	Legislation Funding Trained personnel Manuals and SOPs	MAPA SVSs	MAPA SVSs State Governments	National	Epidemiology Departments structured and organized within OVSs	36 months	States with structured and organized information and epidemiology departments versus total number of states	Lack of personnel OVSs Lack of specific capacity building Funding not available Lack of interest & political will of managers
Increase OVS's epidemiological analysis capacity at all levels with support of research and teaching institutions	Funding; trained human resources e-SISBRAVET Training Media	MAPA SVSs	MAPA SVSs Teaching and research institutions	National	Increased epidemiological analysis capacity at different levels of OVS	55 months	Epidemiological analyses performed by state year on year comparison	Specific sector not structured Financial constraints Personnel constraints Lack of interest and preparation of teams
Strengthen registry of sources of animal health information and encourage effective participation by stakeholders	Funding; human resources; Partnership Manuals Communications Material Media e-SISBRAVET	MAPA SVS	MAPA SVS Partner institutions	National	Animal health information sources registered and greater participation by stakeholders	120 months	Sources registered vs sources identified in each state	Stakeholders: lack of interest and participation Funding constraints Ineffective communications
Establish regular slaughter information pathway, essential for animal health, by animal health inspection services	Legal act; Information Technology; Specialized company Funding Personnel Manuals	MAPA SVSs	MAPA SVSs SIFs, SIEs SIMs Slaughter establishments	National	Slaughter findings communicated to animal health service by established channels with established frequency	120 months	Number of regular establishments vs number existing in Brazil	Technological and bureaucratic hurdles Funding constraints Complexity of communication with SIMs

APPENDIX XVI

Operation: Strengthening the laboratory diagnosis of vesicular diseases in Brazil								
Expected result: Extended diagnostic capacity in Brazil								
Indicator of operation: Level of improvement in installed laboratory capacity for diagnosing vesicular diseases								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Take part annually in external control testing of quality of diagnosis	Official laboratories Financial resources Agreement Trained personnel Inputs	Lanagros	CGAL Lanagros PANAFTOSA	National	Compliance with international quality standards for diagnosis of vesicular diseases	12 months	External control tests: number of laboratories compliant versus annual participants	Lack of political will; unavailability of financial resources; Formal demands Sample sending Insufficient capacity-building of participants
Assess and promote extension of diagnostic scope for vesicular diseases	Human resources Financial resources Meeting SOPs Equipment Inputs	MAPA	DAS/SDA CGAL Lanagros	Location	Scope extended for diagnosis of vesicular diseases	24 months	New techniques introduced vs prediction for period	Lack of political will; unavailability of financial resources; Formal demands
Demand OVSs maintain contracts with transport companies for sending samples to laboratory, and alternative measures to guarantee logistical support	Specific legal instrument Funding; human resources; Central/ State Audits	DSA/SDA	DSA/SDA SVSs Private Companies	National	States where contracts have been signed with transport companies and alternative measures defined	24 months	States compliant with the action vs total number of states	Funding not available Lack of political will and decision-making Absence of specific legislation Local logistical constraints
Assess current capacities and promote reinforcement of diagnostic teams in Lanagros, in order to prepare them to respond adequately to significant unexpected increase in demand	Human resources; Financial resources; Capacity-building Drills	CGAL	CGAL Lanagros DSA/SDA	Location	Laboratory capacities assessed and teams reinforced at FMD diagnostic laboratories	36 months	Number of laboratories assessed with their deficiencies solved versus predicted number	Funding unavailable Personnel unavailable Bureaucratic difficulties
Extend laboratory outreach as support for serological diagnosis	Official laboratories Financial resources Agreement Trained personnel Inputs	MAPA	MAPA SVS Lanagros	Regional	New laboratories with serological diagnosis for FMD	60 months	Number of new laboratories with serological diagnosis for FMD versus number predicted	Lack of political interest & decision-making Funding not available Formal demands Personnel not available
Support automation of diagnostic process at Lanagros that need this	Funding; human resources Equipment Capacity-building State audits	DSA/SDA	SDA DSA/SDA CGAL Lanagros	Location	Laboratories with automated diagnostic system	120 months	Number laboratories with automated diagnostic system vs predicted	Funding not available Complexity of issue Lack of political will and decision-making Scant diagnostic demand

APPENDIX XVII

Operation: Transition from foot and mouth disease free with vaccination status to without vaccination in Brazil								
Expected result: In Brazil: status of FMD-free zones to be changed from "with vaccination" to "without vaccination"								
Indicator of operation: Percentage of Brazilian territory acknowledged as FMD-free without vaccination vs total territory								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Assess and characterize internal risk, if necessary, and external risk for FMD per defined zone	Specialized human resources Financial resources Own methodologies Databases Meetings	SVSs	MAPA SVSs Universities Panaftosa	Zone	Risk Analysis published	30 months	Number of Risk analyses performed and published vs number predicted	Complexity of issue Lack and poor quality of available data Lack of financial resources Constraints on operational ability to perform expected analyses Level of involvement & commitment of players
Assess the accumulated surveillance information and estimate sensitivity of the surveillance system to detect FMDV infection, and level of confidence for freedom from infection in defined zones	Specialized human resources Financial resources Own methodologies Databases Meetings	SVSs	MAPA SVSs Universities Panaftosa	Zone	Surveillance sensitivity analysis estimated and published	30 months	Number of surveillance system assessments performed vs. predicted	Complexity of issue Lack and poor quality of available data Lack of financial resources Constraints on operational ability to perform expected analyses Level of involvement & commitment of players
Carry out immunity studies at property level, representative of the zone population, whenever necessary, to help identify risk factors associated with low immunity	Human resources Financial resources Suitable methodology Inputs Laboratory Databases Transporter for samples	MAPA SVSs	MAPA SVSs Laboratories	Zone	Immunity study performed and report published	30 months	Percentage of stages of action executed vs. prediction for the zone in the period	Complexity of study Limited operational conditions of OVS Lack funding Environmental conditions Other competing demands Limited laboratory capacity
Correct the identified vulnerabilities to prevent introduction of FMD in the zone	Human resources; Financial resources; Analysis Reports Real estate and movable assets	MAPA SVSs	MAPA SVSs Private sector	Zone	Vulnerabilities identified and corrected	48 months	Percentage of vulnerabilities corrected vs number identified in the zone during transition	High degree of vulnerabilities Lack of funding OVS structural constraints Lack of political support Little private sector engagement Lack of political decision
Demand action plans to correct deficiencies detected in audits and follow up on them	Human resources Financial resources Dispatches Meetings Plan template available	MAPA	MAPA SVEs	Zone	Action plans and high degree of fulfillment of measures	48 months	Number of states with action plans with normal execution vs total number audited in the period	Personnel constraints Funding not available Low priority Low stakeholder engagement Large number of corrective actions to manage Many states involved in the zone
When necessary perform viral transmission studies taking into consideration the risk factors associated with low immunity and other factors identified at farm level	Human resources Financial resources Suitable methodology Inputs Laboratory Databases Transporter for samples	MAPA SVSs	MAPA SVSs Laboratories	Zone	Viral transmission study performed and report published	55 months	Percentage of stages of action executed vs. prediction for the zone in the period	Complexity of study Limited operational conditions of OVS Lack funding Environmental conditions Other competing demands Limited laboratory capacity

Operation: Transition from foot and mouth disease free with vaccination status to without vaccination in Brazil								
Expected result: In Brazil: status of FMD-free zones to be changed from "with vaccination" to "without vaccination"								
Indicator of operation: Percentage of Brazilian territory acknowledged as FMD-free without vaccination vs total territory								
Actions	**Resources**	**People in charge**	**Stakeholders Involved**	**Level of scope**	**Expected results**	**Deadline for execution**	**Indicator of action**	**Critical points for achieving this aim**
Evaluate, reinforce and follow up biosecurity conditions in the zones	Trained human resources Financial resources Real estate and movable assets Central and state-level audits	MAPA SVSs	MAPA SVSs	Zone	Evaluation reports showing suitable biosecurity level for zone	60 months	Percentage of measures fulfilled vs predicted for zone	Lack of political will and effort in adopting measures Structural constraints High demand for structure in region involved Lack of funding Insufficient technical personnel
Promote assessment of SVS capacities until states show suitable level of protection (SLP) and satisfactory capacity for response in possible FMD incident	Trained human resources Financial resources Audits	MAPA	MAPA SVSs	Zone	Audit report showing SLP	60 months	Number audits performed vs. scheduled for zone in period	Lack of personnel Funding not available Large number of states making up the zone Difficulties in zone being assessed
Provide technical and financial support for SVSs to enable transition and maintenance of newly acquired status	Specialized personnel Funding Central/state audits Agreements Cooperation agreements	MAPA	MAPA SVSs Private sector	Zone	Technical support actions performed and sufficient financial resources and	60 months	Technical support actions actually performed vs scheduled for zone per year; Funding actually transferred vs scheduled	Limited technical personnel Funding not available Bureaucratic obstacles Lack of political will and decision-making
Recognize new FMD-free zones where vaccination is not practised	Audit reports Immunity and viral transmission studies Administrative procedures Legal instrument	MAPA	MAPA SVSs	Zone	Legal instrument published acknowledging new FMD-free zones where vaccination is not practised	60 months	Percentage of stages of action executed vs. prediction for the zone in the period	Unsatisfactory audit reports Delays in linked actions Personnel constraints Bureaucratic hurdles
Regulate cessation of vaccination in state pursuant to Plan schedule and MAPA authorization	Regional and state-level meetings Legal instrument	SVSs	MAPA SVSs Private enterprise	National	Time line to cessation of vaccination regulated	60 months	Number of states with cessation of vaccination regulated vs total states	Stakeholders' agendas with difficulties Range of interests of affected sectors Lack of political decision
Send dossiers to OIE for international recognition of new FMD-free zones where vaccination is not practised	OIE Questionnaire Databases Sero-epidemiological survey reports Legal instruments	MAPA	MAPA SVSs Panaftosa	Zone	Request completed and sent to OIE within established deadline	62 months	Number of requests sent vs number scheduled for sending by completion of Plan	Completion of previous stages that were delayed Reappearance of the disease Default with OIE Funding constraints