HEMISPHERIC PROGRAM FOR THE ERADICATION OF FOOT-AND-MOUTH DISEASE

PHEFA

Action Plan 2011-2020
Table of Contents

A. Antecedents and justification.................................................................02

B. Description of PHEFA 2011-2010’s Action Plan....................................08

1. Purpose ..........................................................................................08

2. Objectives ......................................................................................08
   2.1 Overall objective ......................................................................08
   2.2 Specific objectives ...................................................................08

3. Principles and values .....................................................................09

4. Action Plan’s strategic lineaments ...................................................09
   4.1 Political and institutional lineaments ......................................09
   4.2 Technical epidemiologic lineaments .......................................11

5. Targets – Expected Results (2011 - 2020) ........................................12

6. Assumptions for target’s achievement .............................................13

7. Action plans according to zoning based on sanitary condition .............14
   7.1 Zone not reconized as free.......................................................14
   7.2 Free zone with vaccination......................................................20
   7.3 Free zone without vaccination.................................................24

8. Program components that should be incorporated into national plans ......26
   8.1 Structure and management of veterinary....................................26
   8.2 Legislation, norms, and regulations .........................................27
   8.3 Information system ..................................................................28
   8.4 Epidemiologic surveillance ......................................................29
   8.5 Diagnostic laboratories ...........................................................30
   8.6 Immunization and vaccine quality control .................................32
   8.7 Sanitary education and public relations .....................................34
   8.8 Integrated programs in the context of family farming ..................35
   8.9 Community participation, with emphasis on the local level ...........36

9. Hemispheric Plan’s management .......................................................39
   9.1 Subregional management and coordination plans .......................39
   9.2 Monitoring and evaluation .......................................................40
   9.3 Coordination and strengthening of international technical cooperation 41

10. Financing .......................................................................................42

Annex

Annex 1 Main aspects favorable to the execution of the new PHEFA Action Plan 43
Annex 2 Main unfavorable aspects that pose a challenge to the execution of the new PHEFA Action Plan 44
Annex 3 Table 1 - Role of the International Organizations and Institutions Involved in PHEFA's Technical Cooperation 46
A. Antecedents and justification

Foot-and-Mouth disease (FMD) is still one of the major livestock diseases worldwide. This is so because of its highly infectious nature and adaptation capacity; of the clinical damage it produces in various animal species, with a significant direct impact on animal welfare as well as an equally significant economic impact on agribusiness productivity; and of the difficulties of access to livestock and livestock products markets stemming from the trade restrictions imposed by the veterinary services of importing countries, which entail serious socioeconomic consequences for the countries and zones affected, and particularly from South-North trade restrictions.

Moreover, FMD harms small producers and thus threatens food security. This applies also to poultry and pork producers, who are unable to move their products in the case of outbreaks and thus experience a sharp drop in their income.

In the past decade, FMD has caused persistent concern worldwide in view of frequent introductions and the disease’s adverse impact on some FMD-free territories with or without vaccination. Prime examples were the FDM outbreaks in the United Kingdom and in the American Southern Cone in 2001, which had devastating socioeconomic consequences, including losses amounting to 8 billion pounds in the United Kingdom and to over 2 billion dollars in MERCOSUR member countries, with major political repercussions. In all these countries the outbreaks compromised not only animal production but also other important segments of the economy, including the supply and consumption of meat, agricultural and livestock services, and the food and animal inputs industry; and severely affected rural community life and rural tourism, as well as causing social consternation over the impact on the environment and on animal welfare, as thousands of animals had to be sacrificed. The concern over the risks of FDM introduction is reflected also on spending on prevention, emergency preparedness, border controls, the establishment of vaccine banks and high biosecurity laboratories, which is justified by risk evaluations and cost/benefit assessment, based on estimates of the costly economic impacts of the possible introduction of the disease into their territories. Recently, on the initiative of the countries and international organizations, a world conference on FMD was held.
in Asuncion, Paraguay, at which FMD prevention, control, and eradication were recognized as actions to ensure international common welfare.

After its introduction in South America in the 19th century, FMD became endemic practically all over the territory with significant cattle populations in the early 20th century. After the introduction of the disease in Canada in 1949 and in Mexico in 1950, it became a regional concern, which led to the establishment of the Pan-American Foot-and-Mouth Disease Center (PANAFTOSA) in 1951 by an agreement between the Organization of American States and the Brazilian government, under the auspices of PAHO. Since then, the Center has extended technical cooperation to the countries, generating knowledge and tools that have supported control actions, including the development of vaccines and diagnostic methods and the creation of the South American diagnostic laboratories network; the continental information system; the epidemiological characterization of the disease’s ecosystems as well as a wide-ranging human resources training and development plan, particularly as regards the countries’ veterinary services. In addition, on a PAHO/PANAFTOSA initiative, a South American Commission for the fight against Foot-and-Mouth Disease (COSALFA) was set up in 1972 as a regional body with public and private participation to coordinate and follow up intervention actions. Thereafter, PAHO, through PANAFTOSA am by the countries’ mandate, set up the Hemispheric Committee for the Eradication of FMD (COHEFA), and, through coordinated, harmonious work with official services and in close cooperation with the private sector (cattle-raising and industrial concerns) a Hemispheric Program for the Eradication of FMD (PHEFA) was established an implemented. The PHEFA Action Plan raised the regional challenge of eradicating the disease by 2009 and formulated strategies and action objectives based on the countries’ commitment and political will.

So far, PHEFA has achieved a considerable number of its targets and commitments honored, to the point of having 85 percent of the bovine population of more than 350 million head in South America recognized by Animal Health World Organization-OIE as free of the disease, with or without vaccination (Tables 1 and 2). These remarkable results were achieved through the countries’ great technical and financial effort and PANAFTOSA’s technical cooperation, and the systematic sanitary work of the approximately five million cattle raisers, who have valued the health of their cattle as a priority as well as a common social asset. This is a historic sanitary achievement on a global level, given both the challenge’s technical difficulty and the scale of the region’s investment of about one billion dollars a year, 70 percent of which financed directly to a great extent by producers in most countries.
Table 1. Foot-and-Mouth Disease Situation in South America in 2009, by countries and zones according to their OIE recognized status.

<table>
<thead>
<tr>
<th>Zonificación</th>
<th>País</th>
<th>Superficie en Km2</th>
<th>No. de rebaños con bov./bub.</th>
<th>Número de bov./bub.</th>
<th>No. de Unid. Locales de Atención Veterinaria</th>
<th>Autos Camionetas y Motos</th>
<th>Casas Rodantes</th>
<th>Personal de campo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Con Vacunación</td>
<td>Argentina</td>
<td>2,290,328</td>
<td>212,245</td>
<td>55,803,147</td>
<td>333</td>
<td>502</td>
<td>43</td>
<td>380</td>
</tr>
<tr>
<td></td>
<td>Bolivia</td>
<td>160,143</td>
<td>3,548</td>
<td>443,715</td>
<td>8</td>
<td>27</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Brasil</td>
<td>4,843,117</td>
<td>1,992,408</td>
<td>176,083,433</td>
<td>1,185</td>
<td>4,621</td>
<td>137</td>
<td>3,636</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>1,097,429</td>
<td>560,745</td>
<td>21,749,504</td>
<td>91</td>
<td>150</td>
<td>9</td>
<td>56</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>8,391,015</td>
<td>2,676,947</td>
<td>254,078,889</td>
<td>1,617</td>
<td>5,310</td>
<td>195</td>
<td>4,135</td>
</tr>
<tr>
<td>Sin Vacunación</td>
<td>Argentina</td>
<td>490,199</td>
<td>5,557</td>
<td>683,392</td>
<td>20</td>
<td>28</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Brasil</td>
<td>95,346</td>
<td>193,238</td>
<td>3,921,933</td>
<td>90</td>
<td>328</td>
<td>13</td>
<td>453</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>17,116</td>
<td>857</td>
<td>103,242</td>
<td>4</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Peru</td>
<td>1,100,742</td>
<td>523,792</td>
<td>2,841,526</td>
<td>78</td>
<td>113</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>1,703,403</td>
<td>723,444</td>
<td>7,550,153</td>
<td>192</td>
<td>480</td>
<td>23</td>
<td>509</td>
</tr>
<tr>
<td>Con Vacunación</td>
<td>Bolivia</td>
<td>895,238</td>
<td>54,006</td>
<td>6,661,043</td>
<td>79</td>
<td>154</td>
<td>11</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>Brasil</td>
<td>3,474,645</td>
<td>590,469</td>
<td>22,205,156</td>
<td>320</td>
<td>1,383</td>
<td>45</td>
<td>918</td>
</tr>
<tr>
<td></td>
<td>Colombia</td>
<td>12,248</td>
<td>1,119</td>
<td>135,170</td>
<td>24</td>
<td>86</td>
<td>0</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Ecuador</td>
<td>248,360</td>
<td>427,217</td>
<td>4,474,917</td>
<td>245</td>
<td>129</td>
<td>0</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Peru</td>
<td>108,828</td>
<td>186,193</td>
<td>1,083,493</td>
<td>23</td>
<td>49</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>5,654,192</td>
<td>1,375,274</td>
<td>46,762,955</td>
<td>825</td>
<td>1,801</td>
<td>60</td>
<td>1,153</td>
</tr>
<tr>
<td>Sin Vacunación</td>
<td>Bolivia</td>
<td>8,010</td>
<td>297</td>
<td>11,104</td>
<td>79</td>
<td>154</td>
<td>11</td>
<td>127</td>
</tr>
<tr>
<td></td>
<td>Brasil</td>
<td>75,646</td>
<td>124,844</td>
<td>570,244</td>
<td>23</td>
<td>12</td>
<td>0</td>
<td>48</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>83,656</td>
<td>125,141</td>
<td>561,348</td>
<td>24</td>
<td>191</td>
<td>0</td>
<td>49</td>
</tr>
<tr>
<td>Con Vacunación</td>
<td>Chile</td>
<td>813,716</td>
<td>125,402</td>
<td>3,719,507</td>
<td>63</td>
<td>200</td>
<td>26</td>
<td>103</td>
</tr>
<tr>
<td></td>
<td>Guyana</td>
<td>98,630</td>
<td>3,618</td>
<td>280,310</td>
<td>18</td>
<td>4</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>1,912,346</td>
<td>129,020</td>
<td>3,999,817</td>
<td>81</td>
<td>204</td>
<td>29</td>
<td>116</td>
</tr>
<tr>
<td>Sin Vacunación</td>
<td>Ecuador</td>
<td>8,413,838</td>
<td>169,128</td>
<td>23,379,182</td>
<td>120</td>
<td>409</td>
<td>18</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>Peru</td>
<td>83,656</td>
<td>124,844</td>
<td>570,244</td>
<td>23</td>
<td>12</td>
<td>0</td>
<td>48</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>84,512</td>
<td>129,020</td>
<td>3,999,817</td>
<td>81</td>
<td>204</td>
<td>29</td>
<td>116</td>
</tr>
<tr>
<td>Total General</td>
<td></td>
<td>18,486,393</td>
<td>5,229,881</td>
<td>337,997,428</td>
<td>2,889</td>
<td>8,502</td>
<td>331</td>
<td>6,205</td>
</tr>
</tbody>
</table>

Data source: Country reports to COSALFA 37.
Preparation: Epidemiology Unit. PANAFTOSA-PAHO/WHO

Table 2. Summary of South America’s zoning based on the Foot-and-Mouth Disease Situation in 2009, according to OIE recognized status.

<table>
<thead>
<tr>
<th>Sanitary Situation May 2010</th>
<th>Area</th>
<th>Bovine and bubaline herds</th>
<th>Total bovines and bubalines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (km²)</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Free without vaccination</td>
<td>3,779,306</td>
<td>20.3</td>
<td>319,671</td>
</tr>
<tr>
<td>Free with vaccination</td>
<td>8,814,564</td>
<td>47.3</td>
<td>2,670,199</td>
</tr>
<tr>
<td>Buffer Zone</td>
<td>260,168</td>
<td>1.4</td>
<td>73,711</td>
</tr>
<tr>
<td>Not free</td>
<td>5,794,691</td>
<td>31.1</td>
<td>1,628,167</td>
</tr>
<tr>
<td>Total</td>
<td>18,648,729</td>
<td>100</td>
<td>4,691,748</td>
</tr>
</tbody>
</table>

Data source: Country reports to COSALFA 37.
Preparation: Epidemiology Unit. PANAFTOSA-PAHO/WHO
Meeting in Texas in 2004, COHEFA’s member countries decided to give a new impetus to PHEFA, pointing out the countries and zones facing greater risk in 2005-2009, for which the Inter-American Group for Eradication of Foot-and-Mouth Disease (GIEFA) was established to provide guidance for the formulation of the new plan and for seeking national and international resources for its financing.

The major progress in the sanitary situation as regards FMD allowed the countries of the region to significantly improve their bioproduction indicators, thanks to the elimination of the disease’s impact on the animals, and made possible the laying down of the sanitary base for growing, sustained exports of animal products (principally beef and pork). This progress has also allowed South America, particularly Brazil and the other Southern Cone countries, to become the world’s major cattle production pole. The extraordinary development achieved in recent decades has lifted this region to a privileged position in the world trade of meat and other animal products, bringing it unquestionable economic and social benefits, as this trade totaled over US$8 billion in 2008, according to FAO. In some countries, such as Brazil, production increases have led to significant increase in domestic supply and today, despite higher exports, more than 80 percent of production is destined for the countries’ domestic markets, which means greater availability and wider population access, without major price variation, which in turn has led to significantly higher average per capita consumption.

Estimates by different international organizations (FAO, World Bank, US Department of Commerce) indicate that world demand for meat will double in the next twenty years, which gives South America a great competitive advantage as a world supplier, given the progress achieved in production systems, which has significantly increased productivity both by head and by cattle-raising area. Conditions are also favorable for free-ranging cattle production, under natural conditions propitious for environmental protection and for obtaining less fatty, healthier meat. This favorable future cattle-raising scenario in most South American countries poses new production and sanitary challenges, particularly as regards the consolidation and maintenance of PHEFA’s progress and the disease’s definitive eradication.

Despite the progress just described and though the Hemispheric Program has been under execution for two decades, the goal of FMD eradication in every country in South America by 2009 has not been achieved as there are still countries and zones where the disease remains endemic. This makes all of South America vulnerable and places at risk the extraordinary effort spent over decades by the official programs, cattle raisers, and all the components of the beef production chain to eradicate this disease. Indeed, Ecuador and Venezuela have not managed to achieve PHEFA’s target of eliminating clinical cases by 2009 and remain as endemic countries. Bolivia shows structural weaknesses in its veterinary service, including operating difficulties in connection with epidemiologic surveillance, animal movement control, and detection of and attention to outbreaks – in this latter case, although no clinical case has been reported since 2007, it has not been possible to locate the origin of the infection, which suggests the existence of endemic niches as yet unidentified. In the Amazon and in some border zones risk characterization has not been concluded and thus the condition or status pertaining to FMD remains unknown. It is also necessary to consolidate the intervention efforts to mitigate the risks
of sporadic outbreaks in the border zones of Argentina, Bolivia, Brazil, and Paraguay and in other border areas, such as the Andean area on the Colombian, Ecuadorian, and Venezuelan borders.

Otherwise, the progress achieved is due basically to massive systematic vaccination campaigns that have led to the application of more than 500 million annual doses, which are financed practically entirely by producers. These social actors have more and more difficulty in realizing the need to continue vaccinating, as the disease has not been detected for more than ten years in most of the territories that have become free with vaccination. If the need for systematic vaccination at the current levels because of the incidence of the disease in the region persists and if producers still fail to perceive the progress made in the sanitary condition and the improved trade prospects, disincentive and difficulties may occur in regard of high coverage. This poses a risk of increased susceptibility of the population and greater risk of infection as well as of the disease’s resurfacing, which would mean a sanitary retrocession that would entail the waste of all the efforts made and of the results achieved.

The conclusion is that despite all the significant progress made under PHEFA, the mission of eradicating FMD in South America is still incomplete. It is thus necessary, under the framework of a new PHEFA and for the ultimate objective of FMD eradication, to strengthen the national programs and the cooperation and solidarity-based, effective actions in favor of priority countries, based on knowledge and real time follow-up by PHEFA’s Executive Coordinating unit.

In view of the magnitude of the challenge, the experience gained from the development of the 1988-2009 PHEFA by the COSALFA countries and PANAFTOSA – unprecedented in the world – shows that the knowledge of the appropriate sanitary instruments and strategies has led to the eradication of the disease in several South American territories where an endemic-epidemic situation prevailed before, and that it is possible to achieve the eradication goal.

Annexes 1 and 2 show in a summary form the favorable elements on which basis the PEHFA is executed, as well as the unfavorable elements that pose a challenge to the achievement of the eradication objective.

At the 36th Regular Meeting of COSALFA, the above-described panorama was exposed by PANAFTOSA and analyzed by the official and private sector delegates of the member countries. PANAFTOSA’s Director, in his capacity as COSALFA’s Ex-officio Secretary, stressed also the Center’s current budgetary difficulties to maintain the level and volume of technical cooperation needed for addressing the problems identified in this final stage of FMD eradication.

The country delegates, sensitive to the situation and aware that this is a decisive moment for making FMD past history in South America, expressed the need for the following: (1) to maintain the progress made and advance further so that all countries may obtain certification as FMD free with vaccination and gradually create the conditions for being certified as free without vaccination; and (2) to maintain the political and financial strength for implementing the strategies and priority actions called for under PHEFA, including regional coordination.
In this respect, COSALFA 36’s Resolution III addressed the strengthening of technical cooperation for FMD eradication and requests PANAFTOSA to set up a working group (WG) charged with formulating proposals regarding new financing sources, while Resolution IV stressed the need to guarantee the provision of reference reactive substances.

PANAFTOSA set up the WG and presented the Project for the strengthening of PANAFTOSA’s technical cooperation for consolidation of the Hemispheric Program for the Eradication of Foot-and-Mouth Disease (PHEFA) henceforward referred to as Biennial Cooperation Project), which was approved by COSALFA 37. Its major components include the following:

1. Preparation of Biennial Cooperation Plans by PANAFTOSA;
2. Initial priority to critical areas, particularly to Bolivia, Ecuador, and Venezuela, without neglecting prevention in all territories;
3. Designation of PANAFTOSA as the PHEFA Action Plan’s centralizing and coordinating unit, which will count on the coordinated, active participation of the different international organizations that operate in the Region. This coordination requires from PANAFTOSA the preparation of a new PHEFA Action Plan focusing on practical measures on the field aimed at the disease’s eradication; and
4. Establishment of a Trust Fund calling for different modes of contribution to finance actions under the Biennial Cooperation Project. The establishment of this Trust Fund has just been approved by PAHO’s Director. It will be used mainly to finance field measures to ensure FMD’s eradication.

The first Biennial Cooperation Project approved by COSALFA 37 addressed the preparation of a new PHEFA Action Plan as a critical activity, as the timetable for the execution of the 1988-2009 Action Planned its 2005-2009 adjustment has expired. COSALFA 37, through its Resolution II, formally charged PANAFTOSA with the preparation of a new Action Plan setting the political strategic and operational framework and orientation for eradication actions over the next ten years. The Biennial Cooperation Projects will consist of biennial work programs and will provide the description and the timetable of the requisite activities, with indicators and detailed compliance targets for each biennium.

This document describes the proposed Action Plan for the Hemispheric Program for the Eradication of Foot-and-Mouth Disease for ten years (2011-2020), prepared by PAHO/PANAFTOSA with the collaboration of a group of professionals of the countries’ veterinary services and of consultants related to the continent’s eradication and prevention programs.
B. Description of PHEFA 2011-2020’s Action Plan

1. Purpose

The elimination and prevention of Foot-and-Mouth Disease in production animals in the countries of the Americas significantly contribute to the socioeconomic development of all their societies, particularly of rural communities, owing to increased primary production/processing/industrialization/distribution/marketing (domestic, regional, and extra-region) of animals and animal products, accompanied by better income and higher employment level, as well as greater consumption and higher State revenues.

As part of FMD eradication and prevention activities in cattle-raising rural and subsistence communities, to improve access to and equality of veterinary care so as to raise the sanitary level and the productive capacity of their herds, which will in turn improve their own food security and increase their participation in supplying the domestic market as well as increasing their income and improving their socioeconomic conditions and welfare, thereby contributing to the fixation of these communities in the rural environment.

2. Objectives

2.1 Overall objective

Eradication of FMD in susceptible animal populations in the countries of South America and the establishment of mechanisms to prevent the risk of the disease’s reintroduction into the countries of the continent.

2.2 Specific objectives

a. To promote the alignment of the national FMD eradication plans with Hemispheric Plan guidelines, in support of their implementation in the countries;

b. To undertake the systematic follow-up, monitoring, and evaluation of the national and subregional FMD eradication plans by the Hemispheric Plan’s regional coordination officers;

c. To ensure that the territories that are not free attain the FMD-free condition;
d. To ensure the FMD-free territories with vaccination and advance the process of FMD eradication toward territories free with vaccination; and

e. To preserve the territories as FMD-free.

3. Principles and values

The program rests on the following principles and values:

a. Determination to achieve a regional sanitary public good and the actors’ responsible commitment to the Plan’s targets;

b. Transparent sanitary management and the actors’ fulfillment of commitments to joint actions;

c. Solidarity and social equality;

d. Decisions made on a technical and scientific basis; and

e. Compliance with international agreements and guidelines (OIE, WHO, WTO, etc.).

4. Action Plan’s strategic lineaments

4.1 Political and institutional lineaments

a. To secure clear, firm political commitment from the countries to the eradication objectives, and adhesion to and full compliance with the principles and actions established under the Plan. This commitment should be supported by a government document annexed to regional and global agreements;

b. At the international level, to ensure solidarity, preferential, and effective support from countries with more experience and greater technical and human resources toward countries where there is still virus circulation, so as to establish, strengthen, and complement eradication programs conducive to the achievement of free status as soon as possible;

c. At the national level, to ensure support from sectors that have earned greater benefits from the advance of eradication for the less favored sectors, so as to make the cost/benefit yields from sanitary actions more equitable, while promoting public
policies to provide full sanitary services in the communities of small-scale cattle raisers and family farmers, as well as indigenous communities;

d. To enhance the cattle-raising community’s participation in the responsible management of its herds;

e. To strengthen joint regional action, particularly as regards the making of important decisions that require the participation of more than one country (veterinary care system) in a coordinated fashion and with the ongoing participation of the private sector, reinforcing and encouraging all regional and subregional cooperation and coordination bodies;

f. To strengthen PANAFTOSA’s technical cooperation management, improving its capabilities for reference diagnostic and assessment of the regional sanitary situation, based on a critical, constructive view, and ensuring its technical autonomy and authority consistently with the requirements of eradication;

g. To strengthen PHEFA’s coordination under the responsibility of PANAFTOSA-PAHO/WHO, which will maintain and reinforce the evaluation and strategic orientation task performed by COHEFA on the continent and by COSALFA in South America. Coordination should assign priority to rapid, timely notification, as well as ensuring the requisite transparency of any occurrence of the disease;

h. To promote the formation of a formal inter-institutional joint cooperation bloc with international organizations that pursue the same objectives as PHEFA’s, so as to avoid disparate efforts and to improve efficiency in the use of resources; and

i. To formulate and implement a communications policy pointing out the convenience of eradicating this disease and providing data on benefits, economic and otherwise, derived often imperceptibly, particularly by small-scale producers of susceptible species.
4.2 Technical epidemiologic lineaments

a. Zoning of actions according to current sanitary status.

Zoning of the continent based on the current FMD sanitary situation, according to the following: detection of clinical occurrence and epidemiologic and laboratorial signs of viral circulation; implementation or lack of vaccination programs; and international recognition of free status in the respective territories. On this basis, the following territories have been identified:

i. **Free Region without vaccination**: which encompasses territories (countries and zones) that do not practice vaccination, remains unaffected of the disease, and has international recognition as such;

ii. **Free Region with vaccination**: which encompasses territories (countries and zones) that practice vaccination, remains unaffected of the disease, and has international recognition as such; and

iii. **Not Free Region**: which encompasses territories (countries and zones) where the following can be identified:
   - Territories with endemic viral circulation;
   - Territories with sporadic occurrence of the disease owing to introduction from external infection sources; and
   - Territories without signs of viral circulation.

b. Utilization of intervention strategies as an orientation framework; epidemiologic characterization of production systems and of FMD ecosystems; and identification of risk factors of the disease’s epidemic process. This is done through the implementation of a combination of instruments that have proven to be more effective in the region for breaking the disease’s endemic-epidemic cycle, achieving eradication of the disease, and preserving the free status;

c. Prioritization and intensification of actions in lacking zones, channeling regional support and technical cooperation to zones and countries that are not yet free of the disease and to free zones under risk of vulnerability along their borders;

d. Consolidation of the significant progress made in eradication actions, preserving the current free zones, with or without vaccination, and strengthening prevention mechanisms in both types of zones;

e. Adoption of plans for the follow-up and evaluation of the execution of the PHEFA Action Plan and of the countries’ commitment to their national programs. This is done through evaluation processes carried out under PANAFTOSA’s coordination in accordance with
the COSALFA and COHEFA agreements, which provide objective elements to measure the progress made, pursuant criteria established for the different regions on the basis of their epidemiologic condition;

f. Maintenance and strengthening of subregional plans, encouraging the integration and coordination of actions under programs implemented by the different country blocs, which call for joint actions on shared border zones;

g. In South America, establishment of a coordinating unit, which will have its action axis in PANAFTOSA-PAHO/WHO, with COSALFA’s active participation through a Standing PHEFA Follow-up Group, consisting of a representative each from the public and the private sectors of each subregion, working closely with PANAFATOSA, maintaining and reinforcing the evaluation and strategic orientation task, and reporting to COHEFA on the continental level and to COSALFA on South America’s level;

h. Adaptation and strengthening of the veterinary care structure, based on the identification of critical performance factors, according to the operating strategic requirements and to the legal and regulatory framework necessary for the program’s execution; and

i. Structuring of the national prevention, control and eradication programs, adjusted to the action requirements, and based on strategic lineaments and epidemiologic conditions.

5. Targets – Expected Results (2011 - 2020)

a. By the end of the period covered by the Plan, territories where the disease is endemic will have reached the free with vaccination status;

b. By the end of the period, territories free with vaccination will have obtained recognition as free without vaccination for most of the territories where epidemiologic, economic, and institutional vaccination withdrawal feasibility has been evaluated; and

c. Free territories without vaccination should, by the end of the period, have preserved their free status and strengthened their mechanisms of surveillance, early detection, prompt response, and prevention.
6. Assumptions for the targets’ achievement

a. National political decision;
b. Regional commitment;
c. Solidarity and technical support to regions, communities, and cattle-raisers with fewer resources;
d. Sufficient human and financial resources allocated to the pertinent activities pertaining to animal health as called for under each country’s FMD programs, with disbursements subject to full execution of tasks and achievement of pre-established targets;
e. Sanitary Authority strengthened and endowed with technical autonomy in its decisions;
f. Firm commitment to active participation in the Program on the part of cattle-raisers and other elements of the livestock production chain; and
g. Governments and international regional and subregional organizations committed to combating FMD, and consolidation of a bloc for the effective coordination of actions, complementing activities and making a more efficient use of resources.
7. Action plans according to zoning based on sanitary condition

7.1 Zone not recognized as free

a. Description of sanitary condition:

Currently, the not-free zone encompasses the entire territories of Ecuador and Venezuela; part of Bolivia’s territories, except for Chiquitania and the Oruro Department (free with vaccination); part of the North and the Northeast of Brazil; and the center-northern coastal zone of Peru. Although all these territories have a not-free status, there are major epidemiologic differences that should be taken into account for determining intervention strategies. In general, three different epidemiologic conditions may be noted in this zone:

- **Endemic/epidemic circulation:** in Ecuador and Venezuela, where primary and secondary and para-endemic ecosystems coexist (sporadic outbreaks), intervention actions have not been effective and as a result the risk of infection by the FMD virus affects practically the entire population of susceptible animals;

- **Sporadic outbreaks (occurrence reported in the last six years):** in Bolivia (Santa Cruz de la Sierra and the valleys region), a condition characterized as para-endemic depending on the primary endemic ecosystems that still exist, as yet unidentified; the Brazilian Amazon Zone (Amazon River basin) probably has a primary endemic situation, where sanitary intervention had not been a priority until recently (Amazonia Brazil);

- **With no detection for more than six years:** not-free territory of Peru; Bolivia’s valleys zone and altiplano (excluding the Oruro Department, which is free with vaccination); the North and Northeast of Brazil (some territories with no detection for more than ten years), whose condition is consistent with the FMD uninfected zone, although in some cases with weaknesses in the sanitary structure to support a zone with free recognition. Most of these zones depend on the entry of animals from other zones, which implies a risk of vulnerability; and

- **Zones as yet unsettled:** include extensive territories with no bovine population and scarce human presence, particularly zones of biological reserves, such as the Amazon region.
b. **Risk characterization:**

There are significant differences in risk levels: the territories of Ecuador and Venezuela present very high levels of infection risk; those with sporadic outbreaks are under average risk, depending on the level of exposure to external infection sources and on mitigating actions; and those where there has been prolonged absence (which are probably uninfected), where risk is low or very low, depending on whether they maintain the low vulnerability conditions that have allowed the prolonged lack of outbreaks. In unsettled zones, risk will depend on the entry of susceptible species and on their sanitary condition.

c. **Needs and challenges:**

- **Endemic zone:** the sanitary situation – endemic-epidemic condition – has remained stable in recent years. During this time, the countries’ veterinary services have had serious difficulties in establishing a basic eradication plan owing to organizational and infrastructural problems, lack of political support for the program, or difficulties of coordination with the private sector. As a result, despite the high vaccination coverage reported, at no time the level of coverage of population immunity has been sufficient to break the endemic-epidemic cycle. In addition, the lack or weakness of animal movement control and the difficulty in imposing quarantine control measures at the foci make possible the free displacement of infection sources, which contributes to the disease’s dissemination. It is thus necessary to prepare or relaunch an eradication plan based on massive, obligatory immunization campaigns, conceived on the basis of the local and zonal epidemiologic realities, in parallel with a minimum official sanitary structure to manage the plan and obtain the private sector’s participation in and support for the pertinent actions.

- **Sporadic outbreaks zone:** The occurrence of sporadic outbreaks also reflects technical-epidemiologic difficulties in managing risks, as these zones have made progress in controlling the disease. Although actions have been implemented under an eradication program, there have occurred situations in which vaccination coverage and the control of animals’ movement have been weak, as in general has been the management of critical aspects of the program. It is thus necessary to strengthen the veterinary care structure and to reformulate the surveillance actions and improve immunization coverage to mitigate vulnerability risks, as well as undertaking intervention actions in zones exposed to external risks, so that these zones may move on to the final stage of the eradication process.

- **Zone with prolonged clinical absence:** The disease’s absence for more than six years is a promising sanitary indicator, although weaknesses are noted in the veterinary services owing to neglected priorities regarding actions in this zone, where territories with more
advanced cattle-raising practices and higher export potential have been privileged. It is thus necessary to adopt risk characterization and surveillance systems, so that its status as uninfected may be ratified and the veterinary care structure may be strengthened to meet international requirements for recognition as FMD-free.

d. Objectives:
To establish and strengthen intervention programs to put an end to the endemic condition. This implies observance of the work guidelines under this plan, reinforcement of the veterinary care structures, and improved coordination with the private sector.

e. Action strategies:
- Epidemiologic risk characterization; and
- Planning and execution of an intervention program that should envisage the following:
  - Reduction of susceptibility prompted by a massive immunization campaign based on the epidemiologic characteristics and population dynamics, coupled with mitigation of the dissemination risk through control, by part of the official services, of the movement of animals, associated with compliance with the immunization campaigns;
  - Social mobilization campaign to support eradication actions, including advocacy at the country’s highest political levels; and
  - Strengthening of veterinary services:
    ➢ Ensuring their inclusion in the State’s juridical and organizational structure through juridical mandate, budget appropriations, and stable functionary positions;
    ➢ Reinforcing sanitary management capabilities under a continuing education plan at the zonal, national, and local levels; and
    ➢ Redefining the participation and reintroduction of the private sector in the execution of the program actions, according to the roles peculiar to it.

f. Expected results:
- Endemic/epidemic zone: if an intervention plan is immediately started, it is expected that in three years the official veterinary service structure (OVS) will have the reach, consistency, strength, and territorial and population coverage appropriate to the efficient management of the eradication program. In parallel, a vaccination scheme under official control should be established, so that in three years the following will be achieved: high, sustained immunity coverage; a timely, effective system of control of foci with an adequate diagnostic
in short time, and effective animal movements control, all of which will result in a drastic reduction of occurrences. Permanent immunity coverage and animal movement control will ensure the disease’s clinical absence for two years and the establishment of schemes of viral circulation monitoring will ensure the absence of viral circulation by the end of this period. These results provide the basis for technical-epidemiologic, economic, and operational feasibility studies to make the territory FMD-free with vaccination, for preparing the pertinent documentation to be submitted to the OIE and for securing recognition as a territory free with vaccination.

A matrix of the evolution of the expected results can be seen below:

<table>
<thead>
<tr>
<th>Endemic/epidemic Sanitary Condition</th>
<th>Evolution of the development of components and parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td>0</td>
</tr>
<tr>
<td>Development and implementation of the national eradication plan</td>
<td></td>
</tr>
<tr>
<td>Formation and strengthening of structure of official veterinary services which are responsible for the program</td>
<td></td>
</tr>
<tr>
<td>Implementation and execution of massive immunization plan under official control</td>
<td></td>
</tr>
<tr>
<td>Implementation and execution of an official system of sanitary-epidemiologic control of animals movements</td>
<td></td>
</tr>
<tr>
<td>Social mobilization plans so that the community understand support and undertake actions</td>
<td></td>
</tr>
<tr>
<td>Structuring and operation of information system for the program that supports decision-making</td>
<td></td>
</tr>
<tr>
<td>Structuring and operation of the epidemiologic surveillance, risk assessment, and sanitary monitoring system</td>
<td></td>
</tr>
<tr>
<td>Structuring and implementation of a program management and administration system</td>
<td></td>
</tr>
<tr>
<td>Vaccinal coverage (% bovine population)</td>
<td>50</td>
</tr>
<tr>
<td>Immunity level (% bovine population)</td>
<td>80</td>
</tr>
<tr>
<td>Bovine movements under official control (% of movements)</td>
<td>0</td>
</tr>
<tr>
<td>Clinical presentation (establishments affected per year)</td>
<td>&gt;200</td>
</tr>
<tr>
<td>Length of absence time (months without disease)</td>
<td>0</td>
</tr>
<tr>
<td>Sanitary status of the disease</td>
<td>End</td>
</tr>
<tr>
<td>% Compliance</td>
<td>0</td>
</tr>
</tbody>
</table>
- **Sporadic outbreaks zone**: Within two years, complete the strengthening of the veterinary care structure so that it can adequately identify and manage vulnerability risks and redirect the immunization campaigns to increase population coverage, with special emphasis on higher vulnerability zones, coupled with effective control of sporadic outbreaks and the attendant epidemiologic research to identify infection sources, together with improved animal movements control, based on risk movement criteria. After the preceding has been achieved, obtain the disease’s clinical absence for a minimum of two years, and establish viral monitoring schemes so that by the end of the period the absence of viral circulation may also be observed. At the end of the period, undertake technical epidemiologic, economic, and operational feasibility studies to make the territory FMD-free with vaccination and prepare the pertinent documentation to be submitted to the OIE.

A matrix of the evolution of expected results is shown above.

<table>
<thead>
<tr>
<th>Components and Parameters</th>
<th>Evolution of the development of components and parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Readjustment of the national eradication plan</td>
<td></td>
</tr>
<tr>
<td>Strengthening of structure of official veterinary services which are responsible for the program</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the massive immunization plan under official control</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the official system of sanitary-epidemiological control of animals movements</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the social mobilization plan so that the community understand, support and undertake actions</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the information system for the program that supports decision-making</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the epidemiologic surveillance, risk assessment, and sanitary monitoring system</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the program management and administration system</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters of Results</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinal coverage (% bovine population)</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Immunity level (% bovine population)</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>85</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>Bovine movements under official control (% of movements)</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Clinical presentation (establishments affected per year)</td>
<td>&lt;10</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Length of absence time (months without disease)</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>24</td>
<td>36</td>
<td>48</td>
<td>60</td>
<td>72</td>
<td>84</td>
<td>96</td>
</tr>
<tr>
<td>Sanitary status of the disease</td>
<td>End</td>
<td>End</td>
<td>End</td>
<td>Ind</td>
<td>Ind</td>
<td>Free</td>
<td>W/V</td>
<td>Free</td>
<td>W/V</td>
<td>Free</td>
<td>W/V</td>
</tr>
</tbody>
</table>

% Compliance | 0 | 10 | 20 | 40 | 60 | 80 | 100 | End | End | End | Ind | Ind | Incomplete | Free | W/V | Free | W/V | Free | W/V | Free | with | Vac
• **Zone with prolonged absence of clinical cases detection:** In two years, reinforce the veterinary care services’ capabilities for evaluation of vulnerability and receptivity risks, and redirect actions to enhance the sensitivity of the surveillance and early detection system, and increase the effectiveness of the information systems as well. Afterwards, within two years, undertake the epidemiologic risk characterization of the population of susceptible species, together with serum-epidemiologic studies that permit demonstrate the absence of viral circulation and estimate the current immunization coverage levels in the zone. Depending on the evaluation of results and of the immunity coverage achieved, make the option for a free zone with or without vaccination. The option for a free zone with vaccination should be justified on the basis of a risk analysis and be consistent with immunity coverage appropriate to the risk. In this case, within a year, make the pertinent risk-based adaptation to the immunization campaigns and undertake the requisite studies (described above) and prepare the pertinent documentation to be submitted to the OIE. If the option is for a free zone without vaccination, vaccination should be suspended and prohibited in the zone.

After two years in compliance with the requirements, undertake serum-epidemiologic studies to demonstrate the absence of viral circulation and the lack of vaccine use, and then prepare the pertinent documentation for obtaining international recognition.
A matrix of the evolution of expected results is shown below:

<table>
<thead>
<tr>
<th>Components and Parameters</th>
<th>Evolution of the development of components and parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0  1  2  3  4  5  6  7  8  9  10</td>
</tr>
<tr>
<td>Readjustment of the national eradication plan</td>
<td></td>
</tr>
<tr>
<td>Strengthening of structure of official veterinary services which are responsible for the program</td>
<td></td>
</tr>
<tr>
<td>Readjustment of immunization plan for strategic vaccination and/or suspension of vaccination</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the official system of sanitary-epidemiological control of animals movements</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the social mobilization plan so that the community understand, support and undertake actions</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the information system for the program that supports decision-making</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the epidemiologic surveillance system, evaluation and mitigation of risk of introducing and continuous sanitary monitoring</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the program management and administration system</td>
<td></td>
</tr>
<tr>
<td>Vaccinal coverage (% bovine population low risk)</td>
<td>70  80  90  95  95  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0</td>
</tr>
<tr>
<td>Immunity level (% bovine population low risk)</td>
<td>60  70  80  85  90  70  20  10  0  0  0  0  0  0  0  0  0  0  0</td>
</tr>
<tr>
<td>Bovine movements under official control (% of movements)</td>
<td>70  80  90  95  95  95  95  95  95  95  95  95  95  95  95  95  95  95  95</td>
</tr>
<tr>
<td>Clinical presentation (establishments affected per year)</td>
<td>0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0</td>
</tr>
<tr>
<td>Length of absence time (years without disease)</td>
<td>&gt; 5  &gt; 6  &gt; 7  &gt; 8  &gt; 9  &gt; 10  &gt; 11  &gt; 12  &gt; 13  &gt; 14  &gt; 15</td>
</tr>
</tbody>
</table>

#### 7.2 Free zone with vaccination

a. **Sanitary situation:**

The zone encompasses territories of Paraguay and Uruguay, the central and northern zones of Argentina, the FDM-free zone of Brazil (except for the state of Santa Catarina), and practically the entire territory of Colombia, except part of the Chocó Department and the High Surveillance Zone of Arauca and Vichada. This zone is where the most significant progress of sanitary programs has been achieved, which has changed territories and bovine populations from an endemic-epidemic condition with high incidence of FMD outbreaks caused by various types of virus into an uninfected condition sustained by effective vaccination campaigns. This has
permitted international recognition as a free zone with vaccination. Nevertheless, there has been major retrocession in the sanitary condition of some countries as, owing to the program’s remarkable progress in some zones, the decision was made to suspend vaccination and pursue recognition as a free zone without vaccination, without proper risk evaluation and without the establishment and reinforcement of the necessary prevention mechanisms. In nearly all these territories the disease was reintroduced, occasioning FMD epidemics that forced resumption of the systematic vaccination strategy.

Leaving aside the epidemics mentioned it is possible to distinguish two situations pertaining to FMD occurrence in this zone: a zone with prolonged periods of the disease’s absence, when no episodes have occurred since the zone has been declared FMD-free; and another zone where there have been repeated foci even after its recognition as an FMD-free zone. These episodes usually are detected in territories near international borders and epidemiologic investigation is not able to identify the infection sources responsible for the disease’s outbreaks. The occurrence of these outbreaks reflects the technical and operating difficulties faced by the veterinary services in identifying zones with potential risk and in intervening appropriately so as to mitigate the occurrences, particularly their difficulty in achieving population immunity coverage to prevent outbreaks. Under this scenario and after the 2005 and 2006 outbreaks in Argentina and Brazil, an agreement was signed between MERCOSUR’s Standing Veterinary Commission (CVP) and the OIE establishing a zone of intensified sanitary actions in border territories of Argentina, Bolivia, Brazil and Paraguay, called “high surveillance zone,” as a way of making possible the restoration of the free status of the other territories where it had been suspended on account of the outbreaks (at the moment, the process of recognition as FMD-free zone with vaccination by the OIE has been started). The same thing has happened with the Colombian, Ecuadorian, and Venezuelan border zones after outbreaks.

b. Risk characterization:

In general, zones with prolonged absence of outbreaks are dependent on zones with sporadic FMD occurrence, and these in turn depend on as yet unidentified territories with viral circulation. Under these circumstances and in view of historical evidence, it is estimated that the risk of FMD occurrence should be considered average or high (outbreaks every two to three years).

c. Needs and challenges:

This zone is where PHEFA has progressed the most in relation to the populations (81 percent of all South America), and which has managed to change from an endemic situation to a free status with vaccination. However, its progress has stagnated because of vulnerability risk factors and, on the other hand, because the majority of its territories have not recorded episodes for a long
period, which makes it difficult to maintain massive vaccination campaigns, as producers fail to realize the risk of the disease’s re-introduction and thus have their aspiration to a an FMD-free status without vaccination postponed. It is thus necessary to consolidate the free status by improving risk characterization of production areas subject to vulnerability risk (susceptibility pockets) and to strengthen immunity coverage in critical zones. It is also necessary to establish risk evaluation systems regarding the level of challenge from external infection sources, so as to assess the feasibility of advancing toward a free status without vaccination.

d. Objectives:
To consolidate the free status with vaccination and to do a feasibility analysis to assess the possibility of advancing in certain territories toward a free status without vaccination.

e. Strategies:
♦ Vulnerability risk characterization; and
♦ Reinforcement of intervention actions in more vulnerable territories, particularly in border zones with endemic areas.

f. Expected results:
Establishment, in two years, of spatial risk characterization systems to identify territories with higher vulnerability risk, which would permit the elimination of residual viral circulation; and strengthening of risk mitigation actions, including immunity coverage and improved animal movement control mechanisms, particularly in border zones. At the same time, establishment of agreements on monitoring zones epidemiologically related to these territories, and establishment of surveillance, detection, and early response plans to permit the successful countering of any FMD reintroduction in these territories. Depending on risk evaluation in zones with positive epidemiologic and economic feasibility, establishment of a plan to suspend systematic vaccination and move forward to an FMD-free zone without vaccination – a plan that contemplates contingency plans to prevent FMD reintroduction; strengthening of surveillance in risk areas; establishment of a vaccine and antigens bank; and creation of compensation funds for emergencies. After one year without vaccination, undertaking of population studies to confirm the absence of viral circulation and stopping the use of vaccination; and preparation of the pertinent documentation for applying for recognition as an FMD-free zone without vaccination. After such recognition is obtained, consolidation and maintenance of the systems to prevent the infection’s reintroduction, and permanent maintenance of active warning and early response mechanisms and of contingency plans for emergencies.
A matrix of the evolution of the expected results is shown below:

<table>
<thead>
<tr>
<th>Components and Parameters</th>
<th>Evolution of the development of components and parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Readjustment of the eradication plan</td>
<td></td>
</tr>
<tr>
<td>Strengthening of structure of official veterinary services which are responsible for the program</td>
<td></td>
</tr>
<tr>
<td>Readjustment of immunization plan for strategic vaccination and/or suspension of vaccination and formation of vaccine bank</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the official system of sanitary-epidemiological control of animals movements</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the social mobilization plan so that the community understand, support and undertake actions</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the information system for the program that supports decision-making</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the epidemiologic surveillance system, evaluation and mitigation of risk of introducing and continuous sanitary monitoring</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the program management and administration system</td>
<td></td>
</tr>
</tbody>
</table>

### Parameters of Results

<table>
<thead>
<tr>
<th>Vaccinal coverage (% bovine population)</th>
<th>90</th>
<th>95</th>
<th>95</th>
<th>95</th>
<th>95</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunity level (% bovine population)</td>
<td>80</td>
<td>80</td>
<td>85</td>
<td>85</td>
<td>90</td>
<td>70</td>
<td>20</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bovine movements under official control (% of movements)</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Clinical presentation (establishments affected per year)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Length of absence time (years without disease)</td>
<td>&gt;5</td>
<td>&gt;6</td>
<td>&gt;7</td>
<td>&gt;8</td>
<td>&gt;9</td>
<td>&gt;10</td>
<td>&gt;11</td>
<td>&gt;12</td>
<td>&gt;13</td>
<td>&gt;14</td>
<td>&gt;15</td>
</tr>
<tr>
<td>Sanitary status of the disease</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
<td>Free WVV</td>
</tr>
</tbody>
</table>

### 7.3 Free zone without vaccination

#### a. Sanitary situation:

This zone encompasses all the territories of North America, Central America, and the Caribbean and, in South America, Chile, Guyana, Suriname (uninfected without recognition) and French Guyana, the North of Colombia’s Choco Department, Brazil’s Santa Catarina State, and Peru’s South and Center-Eastern region. There are two different types of FMD-free territories: those located in North America, Central America, and the Caribbean, and those located in South America. One difference lies in the level of exposure, which in general is considered higher in
South America than in the rest of the continent, as there are still territories with endemic circulation. The other difference lies in the level of experience with FMD. The South American territories have managed to eradicate the disease after successful immunization campaigns and have acquired experience in the disease’s detection, control, and eradication in the last twenty-five. In contrast, the rest of the continent has never had the disease in their territories, or occurrences for sixty years, such as in Canada, Mexico, and United States, or more than thirty years in some Caribbean countries.

b. **Risk characterization:**

There is evidence that in general the South American FMD-free territories have higher vulnerability levels than the rest of the continent, and several reinfection incidents have been recorded in free territories without vaccination (Chile, 1984 and 87; Argentina, 2000-2001; Uruguay, 2000-2001; and Brazil 2001, in Río Grande do Sul). However, all free territories without vaccination share the risk of introduction of existing virus in South America, as well as of virus exotic to the region. Risk levels may be more concentrated in countries with active trade and travel relations with countries in endemic conditions. Some of these latter countries show major weaknesses in their prevention, detection, warning, and early response systems, as can be observed in some countries of Central America and the Caribbean, which have a higher degree of vulnerability.

c. **Needs and challenges:**

Reinforcement of prevention mechanisms to mitigate the risk of the disease’s introduction, and existence of contingency plans capable of detecting, controlling, and eradicating early on any introduction of FMD into the region.

d. **Objectives:**

To maintain the territories FMD-free without vaccination.

e. **Strategies:**

- Vulnerability risk characterization;
- Strengthening of prevention, warning, detection, and early response plans; and
- Existence of contingency plans to face emergencies, and setting-up of regional vaccine and antigen banks, as well as compensation plans.

f. **Expected results**

- Maintenance of the FMD-free status without vaccination; and
- Detection, control, and eradication, efficaciously and effectively, of any case of FMD re-introduction into these territories, with minimum economic, social, and environmental impact possible.

A matrix of the evolution of expected results is shown below:

<table>
<thead>
<tr>
<th>Components and Parameters</th>
<th>Evolution of the development of components and parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readjustment of the national eradication plan</td>
<td>0 1 2 3 4 5 6 7 8 9 10</td>
</tr>
<tr>
<td>Strengthening of the structure of official veterinary services which are responsible for the program</td>
<td></td>
</tr>
<tr>
<td>Formation and maintenance of antigen and vaccine bank</td>
<td></td>
</tr>
<tr>
<td>Establishment and/or strengthening of the health emergency system</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the health education plan and social communication that promotes prevention</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the information system for the program that supports decision-making</td>
<td></td>
</tr>
<tr>
<td>Readjustment of the epidemiologic surveillance system, evaluation and mitigation of risk of introducing and continuous sanitary monitoring</td>
<td></td>
</tr>
<tr>
<td>Strengthening of the program management and administration system</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameters of Results</th>
<th>Evolution of the development of parameters of results in national programs (per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccinal coverage (% bovine population)</td>
<td>0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Level of characterization of events and places of risk of introduction (%)</td>
<td>50 60 80 90 95 95 95 95 95 95</td>
</tr>
<tr>
<td>Level control for places with risk of introduction (%)</td>
<td>70 80 90 95 95 95 95 95 95 95</td>
</tr>
<tr>
<td>Clinical presentation (establishments affected per year)</td>
<td>0 0 0 0 0 0 0 0 0 0</td>
</tr>
<tr>
<td>Length of absence time (years without disease)</td>
<td>&gt;5 &gt;6 &gt;7 &gt;8 &gt;9 &gt;10 &gt;11 &gt;12 &gt;13 &gt;14 &gt;15</td>
</tr>
<tr>
<td>Sanitary status of the disease</td>
<td>Without Vac</td>
</tr>
</tbody>
</table>

% Compliance: 0 20 40 60 80 100 W/O V Without Vac Indemm Free WV Free with Vac
8. Program components that should be incorporated into national plans

8.1 Structure and management of veterinary services

As it is of a primarily official nature, the FMD intervention program (control, eradication, and prevention) should be incumbent on the official veterinary services. The OVS’s technical operating, organizational, and financial management will be the key for achieving the FMD program’s objectives (eradication and prevention).

These structural elements of the OVS’s management function are relevant: organization, appropriation, distribution, levels of action and responsibility, juridical and regulatory base. Functional elements include: planning, management and evaluation of programs from the standpoint of strategy, tactics, and operation; technical support for diagnostic; information systems; training; logistic support, and general services. Budgetary elements are equally relevant. The management of OVS’s as mission, vision, purpose and strategic objectives should match the needs and objectives of a country’s public policies and meet international quality standards, especially for the purposes of the sanitary certification of animals and animal products.

One of the OVS’s tasks is the ongoing improvement of quality – an important objective to ensure the efficacy and efficiency of management. In this connection, the recommendations of the OIE code in relation to PVS (Performance, Vision, and Strategy) are important tools for quality management of a national program. Also important in regard to the management of FMD programs are planning, execution, and evaluation of the various program components. Ideally, there should be a program framework or action plan (annual or biennial) describing the objectives, strategies, targets, and activities, and indicating the levels of responsibility, and the mechanisms of coordination among the different structure levels.

This plan should be prepared in the most participative manner possible and should be known to all and adopted by the different structure levels. In addition, in the program’s execution, preference should be given to supporting operating units (local levels), as regards both human and material resources and training opportunities.

Program planning should take into consideration the disease’s epidemiologic situation, its risk factors, and the intervention needs for allocating and determining the amount of human resources, the jurisdictional areas, and the respective animal populations and production units to be assisted by each local veterinary unit.

The plan should make explicit the mechanisms of evaluation (self-evaluation or external audits) of the program’s progress and of each unit, as well as establishing mechanisms for identification
and correction of deficiencies. Lastly, at all structure levels, the actions contemplated by the program should be made widely known, as should the progress achieved and the difficulties encountered. The participation of the private sector should be encouraged, particularly on the part of cattle-raisers and their organizations and segments of the pertinent industrial sectors.

All these aspects are part of OIE’s PVS tool, which provides a systematic approach both to the evaluation of these components and to their conformity to the necessary requirements for their proper functioning.

8.2 Legislation, norms, and regulations

Given FMD’s high contagiousness, rapid dissemination, and significant adverse economic impacts, combating it requires expeditious and timely actions to control it, as well systematic prevention actions, which must be necessarily compulsory, under the responsibility of the official veterinary services, and entail duties and obligations on the part of cattle-raisers and the private sector in general under the Plan.

Accordingly, national control and eradication programs should be supported by a minimum juridical-regulatory framework, so that actions are carried out in accordance with the OVS’s technical guidelines, and respected and obeyed by the involved community. Ideally, the legal framework should contain the following:

♦ A definition of the competent sanitary authorities and statement of the fight against FMD as an objective for the common good, as FMD is a disease that should be the object of sanitary measures, such as control, eradication, and prevention. The document should also set the norms, procedures, and actions to be carried out for the objectives’ achievement.

♦ The requisite legal attributions so that the OVS’s may enforce the regulatory provisions; and the cattle-raisers’ duties and obligations in relation to the program, particularly the control of their herds, abstention from engaging in actions contrary to the public welfare, and notification of suspected clinical signs to the OVS.

♦ The regulation requirements pertaining to the functioning of places of cattle concentration and to the movements of animals, as well as norms on the operation of industries that produce inputs for the program (immunogens and reactive substances for diagnostic) and on official control of these inputs, as well as industrial biosecurity aspects.

♦ Juridical provisions and instruments to meet emergencies, regulate indemnity funds, and endow the veterinary services with emergency operational facilities.

♦ Indication of the need to encourage the alignment of the countries’ sanitary norms with OIE standards in respect of FMD, aimed at facilitating, on a scientific basis, the trade in
animals, and animal products and byproducts, thereby encouraging those countries that suffer trade restrictions today.

### 8.3 Information system

The proper management of the FMD intervention program, whether it involves control, eradication, or prevention, requires an efficient system of identification, recording, communication, and analysis of sanitary data that, converted into information, will serve as an appropriate basis for decision-making pertaining to sanitary intervention.

As regards FMD, decisions should be based on the best, timeliest, and qualified information on the risks of the disease’s introduction and dissemination, so as to ensure the effectiveness of control and prevention actions. Critical information to be managed, particularly at the level of local units of official veterinary care, includes proper, updated knowledge of the susceptible populations at primary production units, their dynamics and movement flows, the identification of the owners’ universe, and the characteristics of rural properties, places of cattle concentration, and providers of animal health services. Information should be organized in an integrated form in databanks and should be easily shared with the rest of the structure (subnational and national units).

In addition, the information bank should contain the record of the occurrence of sanitary events, the intervention actions carried out on the properties, especially the vaccinations and inspection visits and their results, as well as the record of authorizations of cattle movements (if such movements require authorization, as is the case of FMD control and eradication programs).

To be efficient, information management must have facilities for recording, gathering, and storing of and massive access to ideally georeferenced data, to make possible comprehensive analysis of critical data and their conversion into useful information for decision-making. In this connection, one could cite as an example the SIVCONT (web platform of the Continental Information and Surveillance System) that has allowed users to significantly improve their capacity for sanitary information management at all structural levels. Technologic progress and the lowering of costs of communication and data transmission systems equipment open great possibilities for the structuring of computerized information systems, conducive to a more efficient management of the growing volume of data produced, shortening processing time and enhancing analysis and integration capability. The implementation of computerized Information and Surveillance Systems-SIS requires proper design, based on a data model adjusted to the program’s needs, with special attention to local needs, and pursuant to criteria of simplicity, operability, connectivity, and portability, coupled with the establishment of standards and guides for the management of data available to users of all levels.
As regards management of the FMD program, information provided by SIS is relevant for the management of sanitary risk even at the local level, where the management of sanitary risk events is critical, just as in the management of the movement of animals and animal products.

It should be recalled that the OIE member countries are under the obligation to notify the disease’s occurrence through systems currently in operation, such as the World Animal Health Information System-WAHIS. This obligation stems from OIE’s standing as a reference body before the WHO in respect of animal health and is a fundamental component of risk analysis in international trade.

The complexity and repercussion of daily decisions at the different levels make systematization, availability, and analysis capacity into critical elements of a SIS in support of the eradication program.

### 8.4 Epidemiologic surveillance

Epidemiologic surveillance, a component of an FMD eradication and prevention program, is responsible for the systematic, ongoing observation of susceptible animal populations, the conditions of FMD occurrence or absence, the disease’ epidemic process, and the factors of its introduction and dissemination, maintenance of endemic niches (vulnerability and receptivity risks) of objective animal populations, as well as their interactions with the production systems.

Epidemiologic surveillance encompasses the use of information systematization and analysis and FMD risk characterization instruments, which will be used in intervention decisions. This is why the quality of the surveillance processes depends fundamentally on the efficacy of the information systems and on the level and analytical capacity and on the communication of sanitary risks.

As a rule, a sound surveillance system must have appropriate levels of sensitivity to detect changes in sanitary conditions requiring rapid response, as well as appropriate levels of specificity, so as not to overburden the sanitary services with research activities. It must also count on adequate levels of knowledge of signs of the disease in animals on the part of the community, as well as on a system of continuing training of human resources (veterinarians and technical personnel) in clinical diagnostic and epidemiologic research, in addition to the strengthening of laboratorial diagnostic.

In general, to develop the observation of the target populations, epidemiologic surveillance employs both active and passive actions mechanisms.

Passive mechanisms of sanitary observation include the system of notification of diseases, ante- and postmortem veterinary inspections at work places, and inspections at places of animal
concentration (fairs, rodeos, auctions). Proper systematization and analysis of this information will certainly make surveillance processes more efficient.

Active mechanisms include seroepidemiologic studies, across-the-board epidemiologic investigation of populations at risk, and systematic observation (extensive studies) of populations located in production areas of greater sanitary risk. In this connection, a major role is played by adequate research planning, as well as by the identification of procedures and methodologies for proper interpretation of results. A critical role is also played by knowledge about the sensitivity, specificity, and forecasting value of the different diagnostic methods, both on the field and in the lab.

Surveillance should adapt its objectives and strategies to the degree of progress achieved by the countries and zones in combating the disease. In countries and zones where the disease is endemic, surveillance’s objective will be essentially to identify the variables and critical factors that maintain viral circulation and to define the best intervention options to break the propagation cycle. In addition to monitoring morbidity-mortality parameters and the temporal-spatial frequency of the disease’s clinical occurrence, surveillance should also follow up the susceptibility conditions of the populations, when these are subject to systematic vaccination. In this regard, determination of the populations’ immunity level may have a decisive role in the evolution of the viral circulation determinants and on the effectiveness of immunization campaigns.

In zones where there is sporadic manifestation, surveillance should concentrate on identifying the factors of these populations’ vulnerability, as well as the origin of the infection sources that cause the sporadic outbreaks, and how intervention should be done.

In countries and zones uninfected or holding recognition as FMD-free, surveillance should provide analysis of risk and vulnerability of the populations, identifying the populations and production areas under greater risk, on which the early detection and response mechanisms should be concentrated.

8.5 Diagnostic laboratories

Diagnostic laboratories, both under the national programs and as components of the regional diagnostic laboratories network, play a decisive role in the hemispheric plan’s progress, contributing to epidemiologic surveillance and intervention actions (control and eradication). It is thus necessary to reinforce and readjust laboratorial capacity of diagnostic and control of vaccines in the region, so as to meet the challenges of the final stage of FMD eradication on the continent, especially as regards biosecurity, bioprotection, quality guarantee, and diagnostic differential.
The characteristics of bovine exploration on the continent and the FMD virus biology give the agent a great diffusion power. It is thus necessary that, given the occurrence of sanitary events with clinical signs consistent with vesicular diseases, the laboratorial diagnostic be done as quickly as possible. Accordingly, laboratories must have proper capability to respond to emergencies related to primary diagnostic of vesicular diseases and differential diagnostic for FMD, under the biosecurity conditions required for the FMD virus and according to international quality norms for diagnostic laboratories.

Specifically in respect of biosecurity, manipulation of the infectious FMD virus should be restricted to those laboratories that have NBS 4 OIE biosecurity conditions. In addition, a register/record of the serotypes of the FMD virus existing in the laboratories of the region should be established, and mechanisms should be created for verification and for guaranteeing that these are maintained under NBS 4 OIE biosecurity conditions. In this connection, in view of its function as PHEFA’s reference laboratory, PANAFTOSA-PAHO/WHO’s laboratory must be strengthened, with the addition of an area of NBS 4 OIE biosecurity level at the National Agricultural and Livestock Laboratory-LANAGRO/MAPA in Pedro Leopold, MG. Priorities should include special attention to the establishment of administrative and technical controls to ensure the confidentiality of the information handled by PANAFTOSA at the decentralized unit of LANAGRO/MG, as well as technical-engineering attention to ensure the NBS 4 OIE biosecurity conditions that PANAFTOSA will have in the LANAGRO/MG facilities.

In discharging its reference functions for the PHEFA, the PANAFTOSA laboratory should provide support to the national diagnostic laboratories, especially for strengthening the primary diagnostic capabilities of the laboratories in areas where FMD is still recurrent. It should also have the capability for characterizing and relating with the vaccine strains the isolation of the agent in samples that should be periodically sent in by the countries. In addition, the regional laboratory should maintain biologic reference material (kits, sets, etc) for the efficient functioning of the vaccines control and diagnostic laboratories of the countries, harmonize the methodologies employed in the region, and ensure the continuity of research projects, as well as and encouraging strategic alliances for defining lines of research to adapt the instruments of diagnostic, production, and vaccines control to the continent’s epidemiologic transition (Real Time PCR or others).

It is convenient that cooperation actions aimed at harmonizing the diagnostic methods used in the region and that the establishment of strategic alliances to define lines of investigation be done with the collaboration of other reference laboratories and collaboration centers.

At the regional level, it is necessary to set parameters for the establishment of Banks of Vaccine Antigens and Vaccines prepared with strains of interest to the continent for any emergencies. These strains and culture collections should be handed in laboratories with NB4 OIE biosecurity under official control.
8.6 Immunization and vaccine quality control

The reduction of the animal populations’ susceptibility to the FMD virus owing to the systematic application of immunogens as a result of immunization campaigns has proven that these are an efficient, low-cost way of breaking the transmission cycle of the agent in endemic-epidemic scenarios. Consistent historical, recent evidence shows that when appropriate massive immunization of bovines and bubalines under FMD eradication programs is done it is possible to eliminate the viral circulation in the medium term, without the need for the sanitary sacrifice of affected and exposed animals (although sacrifice is still a very useful instrument in emergency cases). The evidence is consistent with the theory of epidemic processes, according to which the intentional reduction of the population’s susceptibility (through immunization) to such levels that the virus reproductive rate is less than 1,0, it is possible to interrupt the transmission chain in the population. If no new sources come into play, the population reaches the uninfected condition.

In South America, where massive vaccination has been practiced in the last four decades, considerable experience and knowledge has been amassed in regard to the systematic use of vaccination, and an efficient vaccine with oil adjuvant production industry has been established, which produces over 600 million doses a year. This has permitted, through systematic campaigns strategically adjusted to the risk conditions of the production systems, coupled with other instruments such as control of the movement of animals, to interrupt the viral transmission cycle. This has ensured the uninfected condition (without viral circulation) of 80 percent of the bovine/bubaline herd in South America, recognized by the OIE as FMD-free with vaccination. It has been proven, though, that under scenarios of endemic-epidemic FMD virus circulation, where vaccination campaigns have been deficient in achieving high, sustainable coverage, the disease remains permanently endemic.

It has been concluded that the key to success is significant investment in the veterinary biologic industry, coupled with the use of stable virus strains, extensive immunologic coverage such as with vaccine seeds that induce immunity against existing strains on the field, proper vaccine quality control systems, efficient conservation and application mechanisms, and high, sustained vaccination coverage indicators.

In the final eradication phase, as long as there are persistent vulnerability risks owing to endemic circulation in some countries and zones, it is necessary to go on with systematic vaccination in a large part of the territories. It is equally necessary to maintain and reinforce a series of actions that have proven effective in relation to the use of immunization as an eradication strategy. The following actions, among others, should be carried out:

- Maintenance and strengthening of official vaccine quality control pursuant to OIE’s terrestrial manual;
• Maintenance of regional strategic vaccine reserves for emergency situations, in a bank of inactivated antigens or of complete vaccines for strategic use, in accordance with the epidemiologic requirements of the different regions under the plan. This bank should have extra-continental antigens, obtained in inactivated form. The use of strains exotic to the continent should be authorized for handling by an official laboratory with NBS 4 OIE biosecurity conditions;

• Maintenance of PANAFTOSA’s technical capability to provide technical cooperation to the countries that request it for adaptation/construction/operation of laboratories that handle the FMD virus, so that they will attain the NBS 4 OIE biosecurity conditions, pursuant to the concept of Management of Biologic Risk in Laboratories;

• Coordination, together with official organizations, of annual evaluation and orientation visits to every official and private laboratory that handles the FMD virus for any purpose;

• Collaboration with the vaccine producing countries and laboratories of the region in the establishment of quality control systems that take into consideration, in addition to the potency and innocuousness requirements, those of purity in regard to the absence of PNC, so as to minimize interference in the interpretation of results of serologic tests for active surveillance;

• Provision of technical cooperation, and requirement that countries establish harmonized biosecurity measures in the region, as well cooperating in the establishment and qualification of National Biosecurity Commissions on the FMD virus;

• Assistance to the countries in the orientation of projects to adapt infrastructure for handling the FMD virus at public and private institutions;

• Strengthening of the biologic materials distribution system to ensure that vaccines arrive timely at their destination under proper conservation conditions. National projects should take into consideration the role of the cold chain, encouraging the cooperation of private industry in regard to the purchase and maintenance of refrigeration equipment consistent with the program’s needs and that permits full traceability of the cold chain. Vaccine producers should also participate in the obtaining and proper use of the conditions required for handling and applying biologic materials; and

• Strengthening of the control of vaccination on the field so as to ensure appropriate immunity levels. Flaws are usually associated with deficiencies in the handling and application of vaccines. There must be rigorous control in the handling and application of the FMD vaccine. Active control of campaigns should be planned in function of the risks and antecedents of livestock establishments. Rigorous control procedures should come under the responsibility and be according to the norms of the official veterinary services,
but operations should be shared with the private sectors – private veterinarians, the biologic materials industry, cattle-raiser organizations, and others.

8.7 Sanitary education and public relations

The effectiveness of animal health programs may be enhanced if to the technical components are added education and public relations programs to guide the different activities so as to facilitate technical achievements with the community’s participation and intersectoral integration. It is hoped that a program based on appropriate educational and public relations methods adjusted to the reality of each country or region will produce behavioral changes in the community, conducive to the solution of problems in the cattle-raising sector, and make institutional work more efficient and less costly so as to ensure a healthier, more productive cattle-raising sector.

Under national eradication programs, the sanitary education and public relations component should contribute to individual and community behavior that favors the adoption and execution of actions necessary for the achievement of the objectives – knowledge of the disease’s signs and symptoms and its forms of contagion and dissemination; ways to prevent the disease; periodic vaccination of their bovines and bubaline according to the schedule set by the authorities; keeping their animals within their properties and avoiding contact with outside animals; purchase of animals of known sanitary origin; permanent observation of the health condition of their animals; and prompt, timely communication of suspected diseases to the sanitary authorities.

This component should also facilitate community participation by fostering collective participation environments that include local and regional authorities. This includes the promotion of actions related to the program through active public relations using means of communication accessible to cattle-raisers and to most actors that play a role in the program, particularly owners and operators of places of animal concentration (fairs, auctions, and slaughterhouses) and animal transportation.

For proper preparation and execution of the component, sound planning of the educational process is recommended. Planning should be based on an educational and social and community diagnostic (values, attitudes, knowledge) pertaining to the actions that impel the project, so that critical factors can be identified for the adoption of actions. Implementation should consider the main social referents in the community, particularly rural schools, community centers, cattle-raiser associations, and public health centers, among others. Consideration should be given to sanitary education programs under implementation in some countries, including under regional plans. For example, through PAMA, Argentina is developing a program in rural schools of border zones and producing teaching materials.
8.8 Integrated programs in the context of family farming

Experience in working toward FMD eradication has shown that the segment known as family livestock production plays a significant role in advancing national programs. The inclusion of this segment of cattle-raisers has significantly helped achieve the sustainability of the eradication objectives in the countries and zones that have obtained recognition as FMD-free.

It is widely known that over 80 percent of the cattle herds are in the hands of medium- and small-scale cattle raisers, who account for about 70 percent of the bovine population. This important segment of cattle-raisers works under different production, social, and economic conditions in relation to owners of larger herds. In general they are not integrated into the commercial production process; their production is preferentially for domestic or community consumption; they show precarious development levels and high levels of poverty and marginalization. Their schooling level is low and they have little access to the public health care and veterinary care systems. In practice, this segment has difficulty in meeting the requirements and obligations of eradication actions, particularly as regards the sanitary management of their herds (a goodly part of them are managed in a community form) and in observation of vaccination campaigns, either because they do not realize the benefits this practice can yield or because of the economic difficulties proper to their income level.

However, despite the benefits yielded by the improvement of the FMD situation owing to increased export trade, gains have been marginal or insignificant for family cattle-raising, as small farmers are not in a condition to participate in the export trade. The direct economic benefits from their struggle (improved income versus vaccination and direct sanitary spending) are not perceived as investment on improvement but as (obligatory) spending to finance actions. This is aggravated by the fact that among their sanitary concerns, FMD is far from being a priority. Thus, to ensure that sanitary actions may have satisfactory, sustainable results for the community, it is necessary to have the participation, contribution, and compliance of all, but also the obtaining of minimum benefits in relation to the size of contributions and sectoral gains.

Social inclusion and equality require improvement of production processes and higher sanitary levels of their herds. Accordingly, actions carried out under the plan, particularly regarding FMD immunization campaigns, must adopt a comprehensive approach to these communities and ideally incorporate them into the local production development plans, especially into the cattle-raising and food production programs. The objective is to associate FMD eradication with the animal health and agricultural and livestock programs and, if possible, with public health programs, so as to ensure a more efficient use of personnel and rationalize operating costs. This poses a major challenge to be addressed on a priority basis by the national programs, especially
where vaccination is still practiced. Otherwise, there might be major adverse effects on the degree of progress or a risk of deterioration of the system as a whole.

In this connection, some actions could help fortify the production conditions of family cattle-raising, if applied together with activities under national FMD programs consistently with the characteristics, inclination, and potential of each locality. Some of these actions are as follows:

- Promotion of more and better agricultural and livestock technical assistance, specific and appropriate, so as to improve the production capacity of herds and its diversification in the primary phase;
- Relying, as part of this improvement process, on sound Animal Health and Zoonoses as well as Plant Health programs;
- Promotion of the adoption of Good Field Practices appropriate to local conditions, and of the use of techniques appropriate to the specific situation of family farming production;
- Enhancement of the predictable potential of production chains, while seeking to develop artisan processing and direct marketing of quality, healthy food by small-scale farmers, in accordance with sanitary standards consistent with human consumption; and
- So as to ensure the continuity of other segments of the agricultural-food production chain, promotion of the adoption of Good Practices in Artisan Food Processing appropriate to the local conditions of family farmers, including appropriate, effective techniques for nonindustrial conditions.

These activities could be complemented by the following:

- Food Safety Programs and Hygienic Food Distribution under artisan, nonindustrial conditions;
- Identification and celebration of new agreements in the region or outside it, aimed at expanding the marketing of local production; and
- Promotion of solidarity support and assistance to family production communities, from groups of rural producers with greater economic and technical capacity to entities associated with the production chain, particularly those belonging to the same locality or municipality.

8.9 Community participation, with emphasis on the local level

Community participation in PHEFA, particularly but not exclusively at the local level, purports to lead interested social actors to contribute their different views and interests (interdisciplinary and multisectoral) to the generation of more creative interpretations and solutions adjusted to
reality, thereby making these actors into historical subjects that will build the future in this complex field. This is the case of FMD eradication in the countries of South America where the consequence of the lack of participation of individuals and involved organizations could be, in addition to the execution of plans dissociated from reality, little commitment to and scarce identification with PHEFA.

Social participation, understood as collaboration of producers and other users with sectoral organizations (Animal Health Services/Ministry of Agriculture), is ‘directed’ by the animal health sectoral organization. Materialization of participation depends on the social actors’ willingness to collaborate, for which they are urged by the official animal health sector.

In relation to FMD eradication, social participation in co-management is understood as the interrelation or coordination between the ensemble of all the protagonist social actors (official functionaries, livestock producers, and members of the community of interested parties) with capabilities, skills, and opportunity to define, realize, and negotiate their interests, with a view to the development of the health of production animals.

The mechanisms of relations or coordination in the context of social participation are strategic alliances; intersectoral coordination; social networks; social empowerment; social capital; and governance.

The combination of collaboration and co-management in all phases of social processes that promote FMD eradication permits the proposed targets to be more pertinent, thereby increasing the feasibility and the impact of the actions to achieve them, which results in benefits, confidence, and self-esteem among participants.

Social participation at the local level should materialize in local committees, which should list the problems and zoosanitary needs of the herds, given their knowledge (technical and practical) of their reality and the resources both in and outside the sector, so that they are in a position to identify the problems, needs, and care priorities, present alternative solutions, allocate and mobilize resources, and guide the process up to the solution or control of the problems.

The solution or control of problems necessarily implies the ongoing improvement of accessibility, availability, coverage, and equality pertaining to zoosanitary care, which in turn requires from the participative process leadership, and sharing of responsibilities in activities programming and in management.

The official veterinary in the area should be the leader of the participative process and its most active promoter, endeavoring to raise the community’s awareness and calling on it to assume its ‘duties’ in zoosanitary work. He is the leader owing to his capacity to listen, to dialogue, and to orient, the soundness of his technical arguments, the effectiveness of his proposals, and the integrity of his conduct. In addition, he should take into consideration the municipal environment as regards the political, social, economic, administrative, and cultural reality.
identification and analysis of the problems related to the delivery of sanitary services and the proposed solutions cannot ignore the surroundings reality.

The conduction function should promote participation and co-management starting with the following:

1. Promotion and mobilization of the various social forces to concern themselves with the FMD eradication problems and their solutions;
2. Creation of ‘spaces for encounter, dialogue, and consensus’ among participants, as a basis for the setting-up of local committees;
3. Promotion of consensus, harmonization of interests, coordination of efforts, establishment of alliances for the implementation of solutions to sanitary problems so as to achieve the contemplated objectives;
4. Encouragement and motivation of participants for the development of abilities, skills, and solidarity joint work to obtain synergic attitudes, thereby improving the local sanitary management capability;
5. Ongoing promotion of the mobilization of volunteers, influences, and the community so that its agents undertake the commitment to and assume responsibilities for sanitary management to make specific measures more effective;
6. Recognition that there are different possible interpretations in sanitary co-management, which provides different approaches to the problems of service delivery; and
7. Recognition that complexity, uncertainty, and conflict of interests are part of a process in which different social groups participate; the same thing happens in the field of sanitary care. It is thus necessary to be flexible in regard do solutions, monitor what is happening, and in each situation weigh what is desired against what is possible.

The shared responsibilities item (including programming) encompasses the following:

1. Characterization (maps) of the systems of livestock exploitation, cattle marketing flows, location of properties, auctions, fairs, slaughterhouses, packing plants and identification of risk “subareas;”
2. Identification of problems that require attention;
3. Making of solution proposals;
4. Negotiation and pursuit of consensus;
5. Mobilization of resources;
6. Making commitments and assuming responsibilities;
7. Definition of objectives and targets to be achieved;
8. Establishment of actions to be carried out for achieving the established objectives and targets;
9. Monitoring and steering the execution process; and
10. Requirement of account rendering and rendering accounts about results, actions, and responsibilities discharged.
Management should, once programming is done, take charge of the application of administrative methods and procedures for:

1. Supervising and monitoring the execution of activities locally;
2. Coordinating actions in collaboration with other institutions and sectors;
3. Altering the course of actions, reviewing responsibilities, reallocate resources;
4. Directing the training of official and private professionals and of all social actors involved;
5. Managing and controlling available resources;
6. Stimulating social participation in the sanitary care system: eliciting social and political will, and mobilizing financial and material resources;
7. Fostering the development of the information and surveillance system at the local level;
8. Strengthening on the field the work on net of the “community support groups” that operate in the villages;
9. Strengthening and promoting the program’s public relations.
10. Encouraging communication between areas of different risk levels, and fostering preventive sanitary work;
11. Doing periodic evaluation of actions and results (indicators), as well as compliance with commitments and the performance of functionaries and other participants;
12. Ensuring social control of management: evaluation of the success achieved and commitments honored; and
13. Publicizing programs, difficulties, and results to the community.

9. Hemispheric Plan’s management

9.1 Subregional management and coordination plans

It is necessary to ensure the continuity of subregional plans established under the 1988-2009 PHEFA Action Plan, which were conceived to group territories that form contiguous units and share ecologic and production characteristics. They function as subregional coordinators and managers of the action plan. The subregional plans have the following configuration:

- Southern Cone: encompasses territories of Argentina, the non-altiplano region of Bolivia, Brazil’s South, Center-East and Center-West, Chile, Paraguay, and Uruguay.
- Andean region: encompasses territories of the Bolivian altiplano, Colombia, Ecuador, Peru, and Venezuela.
• Amazon and Brazilian Amazon Regions: encompasses territories of the North and Northeast of Brazil, Guyana, Suriname, and Amazon territories of Peru, Ecuador, Colombia, and Venezuela.

• North America: Canada, United States, and Mexico.

• Central America: Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama.

• Caribbean.

An issue of particular relevance, which should be addressed under the subregional programs, refers to the management of the program along international borders, particularly when epidemiologic conditions differ between countries and zones. In these areas, there must be coordination and cooperation between programs of the countries involved, as is the case in binational or tri-national border zones such as the Andean Area, the Southern Cone, and the Amazon. The signing of border agreements involving two or more countries should continue, establishing a work plan calling for the following actions, among others: keeping updated cattle-raising and community registers; identification of risks; harmonization of actions under the national programs in the area; epidemiologic surveillance; timely, transparent, and ongoing exchange of information between countries; definition and application of risk mitigation measures; and joint periodic evaluation of actions under the plan.

9.2 Monitoring and evaluation

• PANAFTOSA will give continuity to its mission and mandates regarding PHEFA’s coordination and management. This implies the use of specific mechanisms for the monitoring and evaluation of veterinary services’ structure and operation, which PANAFTOSA will make explicit in its management plan submitted to COSALFA, and will report to COSALFA and COHEFA on PHEFA’s progress. The management plan will rely on a specific information system, to which the countries will submit timely information on both the public and private sector. The plan will be executed by PANAFTOSA professionals and specialists of the region. PANAFTOSA will be guided by the determination to maintain transparence and the accuracy and timeliness of its report on the regional sanitary situation, so as to ensure the countries’ adhesion and political and institutional support, as well as the contribution of resources by donors from the private sectors and institutions.

• Through PANAFTOSA the countries will submit to COSALFA their national action plans and annual work plan describing objectives, activities, targets, and resources involved,
and explicitly stating their commitment to act in compliance with the agreements and with PHEFA’s political, strategic, and operating directions.

- COHEFA and COSALFA, in their respective fields of action and wielding their respective mechanisms, will be responsible for overseeing and supporting PHEFA’s management. The GIEFA, in coordination with COHEFA and COSALFA, will take handle advocacy and securing political support, as well as raising resources to support PHEFA, focusing preferentially on priority countries and zones.

- PHEFA will be evaluated by external audits at intervals to be determined by the Committee in consultation with COHEFA.

9.3 **Coordination and strengthening of international technical cooperation**

Subregional, regional, and world technical cooperation organizations, in association with PAHO, should participate and contribute to the achievement of the eradication goal. This participation requires concerted actions by the different organizations, so that their respective cooperation programs are attuned to PHEFA’s objectives and strategies, so as to optimize the use of resources and avoid duplication and overlapping of activities. At this PHEFA stage, the different initiatives of international organizations will be coordinated so as to reinforce the initiatives listed in Annex 3, Table 1: Role of International Organizations and Institutions associated with Technical Cooperation under PHEFA. This cooperation should be enhanced with special attention to the Andean Subregion countries. As an example, MERCOSUR is implementing PAMA, a program that from the outset encompassed several PHEFA components; thus it is of utmost importance to coordinate the activities between the two plans, so as to optimize the use of resources, and to take into account the progress achieved (particularly under border project).
10. Financing

PHEFAs action plan relies on a set of financing sources for carrying out its activities. These sources include the following:

- Direct contributions from the public and private sectors to their own eradication programs. In the case of countries and zones with systematic vaccination, spending on vaccination is incumbent on producers;
- Direct technical and financial assistance bilateral agreements – country to country (APHIS-USDA – MAPA-Brazil) or multilateral agreements between a group of countries and a financing institution (MERCOSUR-FOCEM; FAO-UE-CAN Project);
- Contributions of financial institutions through refundable and nonrefundable credits to support the strengthening of intervention programs; and
- Trust Fund set up by PAHO/WHO to support PANAFTOSA’s technical cooperation, with contributions from donors interested in supporting countries with difficulties, so as to accelerate the plan’s execution and achieve eradication within the shortest time possible.
Annex 1

Main aspects favorable to the execution of the new PHEFA Action Plan

- Eighty-five percent of the South American region’s bovine population has achieved the FMD-free status with or without vaccination.
- There are effective technological instruments developed in the region for use in diagnostic, epidemiology, surveillance, vaccine control, and evaluation of viral circulation.
- The region produces high-quality vaccines in sufficient quantity to meet PHEFA’s needs.
- Active participation of the private sector, principally in zones of entrepreneurial production.
- Most veterinary services are properly structured and have sufficient experience and capacity for meeting the eradication challenge.
- Effective political support from most countries and important sectors of the cattle production chain for eradication actions.
- Significant gains have been recorded by the export sector owing to the improvement of the FMD sanitary condition, which has allowed the sector to meet international sanitary requirements and improved certification conditions.
- Significant progress in the development of the cattle-raising sector, including improved productivity and efficiency, and promotion and facilitation of the establishment of veterinary care services in a considerable number of rural communities, where eradication progress has been achieved.
- South America is the region in the world with the highest growth potential in the production of low-cost beef.
- Existence of an international technical cooperation Center (PANAFTOSA), which has worked with the countries for 60 years in FMD control and eradication.
- Existence of regional technical cooperation organizations, such as OIE, FAO, IICA, OIRSA as well as others of regional coordination, such as CMA/CVP/PAMA and CAN/COTASA, which extend contributions and support to the countries.
- Incorporation of differentiated strategies in specific countries and zones within countries, which has permitted the incorporation of their different production and socioeconomic realities.
- Favorable regional political moment, with marked trend toward the establishment of regional political and socioeconomic integration agreements.
- Political support from major public and private sectors of the region, which are willing to finance eradication actions and support less favored zones and sectors.
- Favorable world economic scenario, given increased meat consumption.
- Great possibility of better opportunities for economic negotiation of cattle products from susceptible species, elimination of sanitary barriers to regional integration, and improved competitiveness of the cattle industry owing to sanitary progress.
- PAHO’s institutional political support for giving continuity to PANAFTOSA’s action and the establishment of the Trust Fund to finance technical cooperation.
Main unfavorable aspects that pose a challenge to the execution of the new PHEFA Action Plan

- Fifteen percent of the bovine population are concentrated in territories that are not yet FMD-free, where there are serious structural difficulties and where in some cases there is lack of political support for eradication programs, and where the disease is thus maintained in endemic form.
- A significant portion of the population (81 percent) is still in a free condition with vaccination and only 3.8 percent are free without vaccination (eradication’s ultimate objective), which poses a challenge for securing the will, coordination, and intervention efforts on a large scale.
- High operating costs and high public and private spending are necessary for maintaining the zone free with vaccination.
- There is disincentive in FMD-free zones with vaccination to maintain high-coverage, systematic vaccination as in most territories the disease has not been detected in more than ten years.
- The program’s progress and increased exports generate certain imbalance between spending and benefits. Benefits from sanitary progress must be extended to medium- and small-scale producers as well, as these benefits go primarily to exporting producers, who derive greater benefits in relation to their contribution.
- Family-farm producers should be more involved in the eradication process and should receive contributions and support for improvement of their living conditions and for development of the rural areas.
- FMD-free zones without vaccination must maintain costly prevention mechanisms owing to the regional risk stemming from the maintenance of endemic zones.
- General deficiencies in the conduction of national plans, especially in management control.
- Persistence of regional risk conditions owing to the permanence of endemic conditions in countries and zones, which may hinder progress in FMD-free areas with vaccination, destabilize the current situation, and cause serious retrocession, with adverse economic impacts difficult to recoup.
- Divergent political interests and priorities on the part of some governments, particularly in counties where FMD is endemic, in relation to the regional eradication objectives, hinder progress, thereby requiring great political advocacy efforts at a high level on behalf of the eradication cause.
- Sanitary improvement has been stagnated for five years. This undermines motivation toward repetitive actions without sanitary progress, which may cause lack of interest in maintaining costly vaccination campaigns resulting in low vaccination coverage and heightening susceptibility and thus the vulnerability risk.
- Deficiencies in certain aspects of regional coordination between regional and national programs, leading to lack of consensus on the best form of joint strategic action, which in
turn is compounded in some cases by failure to communicate sanitary risk events, and the adoption of unilateral decisions.

- The need to incorporate specific mechanisms to improve coordination among the different cooperation organizations involved in the Plan, so as to make actions more efficient and effective, encouraging contributions and support from the countries, and prioritizing activities in critical countries and zones (Bolivia, Ecuador, and Venezuela).
- Cattle-raising communities with little incentive do not collaborate with eradication actions and may pose a risk for the program, owing to weaknesses in the integrated action proposals involving small-scale cattle-raisers.
- The maintenance of the sanitary condition in countries where FMD is endemic potentiates the risk of the disease’s transmission and reintroduction into free zones.
### Annex 3

#### Table 1 – Role of the International Organizations and Institutions Involved in PHEFA’s Technical Cooperation.

<table>
<thead>
<tr>
<th>Organization</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAHO/PANAFTOSA</td>
<td>Coordinates PHEFA’s management; develops technical cooperation activities pertaining to information and epidemiologic surveillance systems, reference laboratories, prevention intervention plans, FMD elimination and control; and acts as ex officio secretary to COSALA and COHEFA.</td>
</tr>
<tr>
<td>OIE</td>
<td>PVS process and support to the strengthening of veterinary services; follow-up of actions in FMD-free countries and zones; revision of the Terrestrial Animals Code; recognition of FMD-free countries and zones with and without vaccinations and infected zones; and framework for worldwide FMD elimination – GF-TAD initiative (before FAO).</td>
</tr>
<tr>
<td>FAO</td>
<td>Framework for worldwide FMD elimination - GF -TAD (before OIE); Integrated Regional Project for the Gradual Control of FMD in the Andean Region (GCP/RLA/178/SPA and GTFS/RLA/172/ITA):</td>
</tr>
<tr>
<td>IICA</td>
<td>Promotes and support the development of capabilities and the modernization of agricultural and livestock health and food safety.</td>
</tr>
<tr>
<td>CVP</td>
<td>Plays subregional program rectorship and coordinating role. FMD-free MERCOSUR Action Plan – PAMA.</td>
</tr>
<tr>
<td>CAN/COTASA</td>
<td>Plays rectorship and coordination role for the Andean Region subregional FMD program.</td>
</tr>
<tr>
<td>GIEFA</td>
<td>Mobilization of resources for PHEFA’s for PHEFA’s execution, support, and technical political advocacy in priority countries.</td>
</tr>
<tr>
<td>CFIA, Canada</td>
<td>Support to diagnostic laboratories in the Andean Region.</td>
</tr>
<tr>
<td>MAPA-Brazil</td>
<td>Cooperation agreement with PAHO/WHO to finance the upkeep of PANAFTOSA installations and to support regional technical cooperation.</td>
</tr>
<tr>
<td>OIRSA</td>
<td>Coordination and rectorship of prevention programs in Central America and Mexico.</td>
</tr>
<tr>
<td>SENASA- Argentina</td>
<td>OIE Reference Laboratory and Center for Cooperation in Training of Veterinary Services, and technical cooperation in the region.</td>
</tr>
<tr>
<td>USDA/APHIS, USA</td>
<td>Alliance with PANAFTOSA for FMD elimination and bilateral cooperation with countries of the region.</td>
</tr>
</tbody>
</table>