Ministry of Agriculture and Rural Development
Department of Animal Health Services

Rift Valley Fever Contingency and Preparedness Plan for Ethiopia

(final draft)

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ETHIOPIA

1. Disease description

1.1. Animals affected

Rift Valley Fever (RVF) is an infectious zoonotic disease affecting sheep, goats, cattle and camels.

1.2. History and spread of the disease

Rift Valley fever was first described in Kenya in 1931 when the disease was investigated in sheep in the Rift Valley area of the country. There is strong evidence that the disease had occurred for many years previously in the Sudan and other parts of equatorial Africa. A major epizootic occurred in South Africa in 1950/51 and another in the central regions of Southern Africa in 1975. In 1977, an outbreak of RVF occurred for the first time in Egypt in the Nile Delta. In some severely affected areas, about 70% of the human population was infected. The spread of RVF was attributed almost exclusively to Culex pipiens mosquitoes. Except for laboratory infections, it has not been reported outside Africa.

Unusually heavy rainfall from late October 1997 to January 1997 resulted in the worst flooding in the Horn of Africa since 1961. This was followed by an epidemic of RVF whereby cases were confirmed in people in the North Eastern, Central, Eastern, and Rift Valley Provinces of Kenya, and in the Gedo, Hiran, and Lower Shabeelle Provinces of Somalia. Livestock losses of up to 70 percent in sheep and goats, and 20–30 percent of cattle and camels, were also reported.

In 2000, an outbreak of Rift Valley Fever in Southern Saudi Arabia and Yemen had left dozens of people dead and hundreds infected. During this time, RVF was reported for the first time outside Africa. As a consequence, six Gulf States, namely, Saudi Arabia, Bahrain, Yemen, and the United Arab Emirates had banned livestock imports from nine African countries including Ethiopia.

An outbreak of Rift Valley Fever (RVF) was confirmed in the North-Eastern province of Kenya (Galmagara village, Garissa district) in late December 2006. From mid January to early May 2007, RVF was also reported in 10 out of the 21 regions of Tanzania. Similarly, a total of 114 cases including 51 deaths of Rift Valley Fever were reported in Somalia from late December 2006 to late February 2007.

As of late November 2007, 436 human RVF cases, including 161 deaths have been reported from White Nile, Sennar, and Gazeera States of Sudan.

In Ethiopia, clinical RVF has never been detected and reported. The country is providing emphasis to the disease following outbreaks of the disease in neighboring countries. Considering, the geographical proximity of the country to RVF endemic countries like Kenya, Sudan and Somalia, the nature of livestock movements across the international border and the ease with which infected mosquitoes can be moved longer distances by the help of wind lead to the conclusion that Ethiopia will always be vulnerable to clinical RVF during the epizootic periods of the diseases in the Horn of Africa region.

1.3. Clinical signs

Very young lambs, calves and kids are highly susceptible to infection with RVFV. The mortality rate is 90-100% in lambs and kids under a week old and 70% in calves. In young lambs, the first

sign may be sudden rise of temperature to 40.5 - 42.2°C, followed by collapse and death within 36 hours. This acute form is less common in older sheep and goats which have a mortality rate of approximately 20-30%. Clinical signs in adult sheep and goats are not consistent but may include a rapid rise in temperature, vomiting, mucopurulent nasal discharge, unsteady gait and frequently, abortion. Pyrexia and leukopenia are customary in sheep, goats and calves, but overt signs of disease are more severe in sheep. Clinical signs in adult cattle include high temperature, salivation, anorexia, general weakness, fetid diarrhea, a rapid decrease in lactation, and abortion. Abortion may be the only marked sign in cattle. Mortality in adult cattle is usually less than 10%. The incubation period in young lambs is 12 to 24 hours. In older animals, an incubation period up to 3 or 4 days may occur.

1.4. Post-mortem lesions

Histopathologic changes in lambs and adult sheep are similar. During early stages, hepatic tissue changes are local in distribution. Aggregates of neutrophils accumulate in sinusoids. Later, groups of necrotic liver cells form near the leukocyte accumulations and foci of necrosis coalesce, until nearly all hepathic cells within a lobule and even the organ are necrotic. Cells at the periphery of lobules retain viability longer than cells in other lobular zones. A wide range of degenerative and necrotic changes is seen in hepatocytes. The most conspicuous lesions include prominent nuclear changes, cytoplasmic degradation and sequestration and the formation of acidophilic cytoplasmic bodies. The enlarged nuclei may show margination of chromatin and the formation of acidophilic inclusion bodies. Similar extensive liver damage occurs in humans that die from the disease.

2. Legal provisions

2.1. Statutory provisions

- Animal Diseases Prevention and Control Proclamation No. 267/2002

2.2. Notification to be given upon outbreak of an Animal Disease, including Rift Valley fever

Legislation regarding prevention and control of animal diseases including Rift Valley fever has been issued in the Animal Diseases Prevention and Control Proclamation No. 267/2002. Part Two of the Proclamation deals with the prevention and control measures to be undertaken by the Ministry of Agriculture and Rural Development. On notification of infectious animal diseases, Part Two, Articles 3, Sub Article 1-7 obliges compulsory notification of suspected animal diseases including Rift Valley fever by the owner/keeper and the animal health personnel (public and private). The Federal Animal and Plant Health Regulatory Department is the focal point for reporting. The course of action on receipt of a notification of suspected Rift valley fever case(s) is detailed in this contingency plan. Following notification and laboratory confirmation, the case is reported to the International Animal Health Office (OIE).

As soon as livestock is suspected of being infected with notifiable animal diseases, the measure indicated in Part Two, Article 7 of the Proclamation No. 267/2002 is undertaken.

2.3. Slaughter of infected and animals suspected of being infected with notifiable animal diseases including Rift Valley fever

Part Two, Article 8, Sub Article 1-8 of the Proclamation No. 267/2002 lays down that as soon as notifibale animal disease(s) including Rift valley fever is/are officially confirmed in the country, the Animal Health Officer in the specific area is empowered, among others, to order isolation, slaughter and disposal of animals.

2.4. Destruction of carcasses

Under Part Two, Article 5, Sub Article 5 of the Proclamation No. 267/2002, carcasses of animals infected or suspected of being infected with animal disease are designated high-risk materials. The Article lays down that carcasses of animals infected or suspected of being infected with animal disease shall be disposed of in accordance with the instruction given by the animal health officer.

2.5. Compensation

The Animal Diseases Prevention and Control Proclamation No. 267/2002 has an optional system of compensation. This is set out in Part Five Articles 18 of the Proclamation. Article 18, Sub Article 1 of this Proclamation states that "No compensation shall be paid to the custodian if diseased animal is killed or slaughtered for the purpose of prevention and control of the spread of animal disease based on the instruction of the animal health officer". On the other hand, the Article 18 states that "Without prejudice to sub-articles (1) and (2) of Article 18, if the Minister gives order for the slaughter or removal of animals in order to prevent and control notifiable animal diseases in the whole or part of the country, the Minister may arrange payment of compensation as deemed necessary".

2.6. Animal movement control

In order to prevent the occurrence and the spread of animal diseases at any time and place, the Ministry and /or the concerned region are empowered under the Animal Diseases Prevention and Control Proclamation No. 267/2002 to inspect animals and apply prophylactic, therapeutic treatments or necessary quarantine measures as required or inspect animals prior to transport, during transport and after transport, limit or prohibit their movement if so required.

Under Part Three, Articles 12 of the Animal Diseases Prevention and Control Proclamation No. 267/2002, the necessary regulations and actions (e.g. with respect to animal diseases movement permit from one place to the other) comes into force immediately after an outbreak of notifiable animal diseases has been reported.

2.7. Enforcement

Under Part Five, Article 19 of the Proclamation No. 267/2002, Animal Health Officials designated by the Minister are responsible for compliance with disease control as established in accordance with the Proclamation. Detection of punishable offences is the responsibility of the officials so designated under the Ethiopian Criminal Code.

2.8. Penalties

Any person who violates the provisions of the Proclamation No. 267/2002, regulations and directives issued pursuant to it shall be punished under the provisions of the penal code.

3. Financial provisions

3.1. Financing outbreaks of notifiable animal diseases including Rift Valley fever

As there is no legislation for cost-sharing arrangements for prevention, control and eradication of notifiable animal diseases, funds to pay these costs, including compensation, will have to come from other sources. Possible sources are:

- Federal government emergency funds;
- Federal and Regional government recurrent budgets;
- Other agreed arrangements with donors.
- Individual owners of animals.

In May 2008, the Ministry of Agriculture and Rural Development has designed three years Disaster Management Plan. The purpose of the plan is to strengthen early warning system and preparedness capacity to manage flood, forest fire, animal disease epidemics and migratory crop pests. The plan covers the period 2009-2011, with a total budget of _____ allocated to animal health disease emergencies.

3.2. Personnel

Money voted to the Ministry of Agriculture and Rural Development and Regional Bureaus of Agriculture and Rural Development each year cover the cost off staff employed by the Ministry and Regions (Veterinarians, Animal Health Assistants, Animal Health Technicians, laboratory staff, Meat Inspection and Quarantine Services). If additional personnel are required on a temporary basis, their cost is borne by various projects and programs. The costs covered by Projects and Programs include equipment and consumable purchases and personnel-related operating costs, e.g. payments and travel expenses.

3.3. Equipment and consumable items

The costs of equipment and consumable items are covered partly by the Federal and Regional Governments but mainly by livestock Projects and Programs which operate in the country. Some equipment and consumable items (like ELISA reader, PPE, RVF IgM and IgG diagnostic kits, tips, etc) are in stock. Costs for additional capital items are covered by a fund that is often obtained through appeals to donor agencies which operate in the country.

3.4. Slaughter, transport of carcasses and transport and destruction of contaminated material, sanitation

These costs are covered by the Fund.

3.5. Compensation payments

Under special conditions to be decided by the Minister of Agriculture and Rural Development, compensation payments should be paid out of the Fund.

3.6. Emergency vaccination and identification

As a rule the costs of vaccine, emergency vaccination and identification are provided for by the Fund although there is an opportunity for the Minister of Agriculture and Rural Development to decide that these costs are in total or partly at the expense of the owner of the livestock concerned.

4. Chain of command for prevention and control of notifiable animal diseases

4.1. Chain of command

The veterinary services of the country are structured according to the administrative set-up of the country. At Federal level, the Animal and Plant Health Regulatory Department (APHRD) is accountable to the State Minister of Agriculture and rural development (Fig. 3). APHRD has a national referral and diagnostic lab at Sebata for all TADs including Rift Valley fever. During disease emergency situations, APHRD is mandated to coordinate and organize disease prevention and control activities in all parts of the country.

The Regional Veterinary Service team is integrated in the Regional Bureaus of Agriculture and Rural Development. In those Regional States where zones exist, there is zonal veterinary service administration within the Zonal Bureau of Agriculture and Rural Development. The Woreda Veterinary Services are accountable to the respective Woreda Administrative Councils. Different budgets are allocated at the Federal, Regional and District levels for the activities of the veterinary services. There are eight Regional Veterinary Laboratories throughout the country and a total of three additional laboratories are under construction in Jijiga (Somali), Gambella and Samara (Afar) National Regional States. The National Animal Health Diagnostic and Investigation Centre (NAHDIC) as Sebeta acts as a focal centre for monitoring the activities of the Regional Veterinary Laboratories involved in notifiable diseases surveillance and reporting. All regional laboratories are funded by the respective National Regional States. All the Regional Labs also assist other Regional States that do not have laboratories. With regard to RVF surveillance, the Regional Veterinary Laboratories together with NAHDIC conduct active disease search activities (disease and sero-monitoring) and clinical verification of massive abortion cases in animals and influenza like symptoms in humans. The Regional Veterinary Laboratories have well-trained and qualified staff for the afore-mentioned activities. Telephone, fax and email connections exist in all Regional Animal Health Services and Veterinary Laboratories. All the Woredas in the country have landline telephone services, quite a number of them have also mobile telephone services. Most Kebelle PAs have a central wireless telephone lines.

The livestock owners are represented by Kebele Peasant Associations (Pas). Each Kebele PA has one livestock personnel as an extension agent. Livestock owners report new incidences related with livestock diseases including RVF to each extension agent assigned at each Kebele PA. Disease searching activities also involve Participatory Disease Search tools. Apart from this, designated members of pastoralists are constantly trained as Community Animal Health Workers (CAHWs) and are involved in surveillance and reporting networks of notifiable animal diseases in remote areas of the country.

A close working relationship developed between the Ministry of Agriculture and Rural Development (MoARD) and Ministry of Health (MoH)) for the avian human influenza threat is currently being used for RVF. Through this system, an effective response can be mounted against RVF and other notifiable livestock diseases that have a significant economic and public health importance.

4.2. National Coordination Committee

Due to an increasing threat of Highly Pathogenic Avian Influenza (HPAI) at global level, Ethiopia had established a National Coordination and Technical Committees as of 2005. The National Coordination Committee (NCC) is led by the high authorities of the Ministry of agriculture and Rural

Development and Ministry of Health. The main responsibility of the NCC is to mobilize and coordinate all the available human and financial resource to combat Avian Human Influenza threat to the country. Subsequently, the NCC has decided to use the Avian Human Influenza structure for RVF as well as other emerging diseases of zoonotic nature.

4.3. The National Epizootic and Zoonotic Response Committee (NEZRC)

While the National Coordinating Committee (NCC) is responsible for monitoring the overall performance of the National Technical Committee (NTC), the NTC coordinates and facilitates the overall planning and execution processes of HPAI prevention and control efforts in all regions of the country. The NTC is chaired by APHED of MoARD and involves the Ministry of Health as one of the main members of the committee. In more recent years, the committee has extended its scope beyond HPAI and oversees the situations of other TADs of trade and livelihood importance (e.g. Rift Valley fever). As a result, the committee was re-named as National Epizootic/Zoonotic Response Committee (NEZRC). NEZRC acts as an advisory body to APHRD and its purpose is to bring together MoARD and all stakeholders together so as to monitor and assess the situations of TADs at national, regional, continental and global levels. By doing so, NEZRC tries to strengthen inter-institutional collaborations for early detection and appropriate actions against TADs. The CVO is the chair person of the committee. NEZRC is convened regularly in the office of the CVO.

The NEZRC is mandated to perform the following main duties.

- In the event of a primary outbreak, it gathers epidemiological data that provides a broad assessment of the kind of risk involved.
- During the course of the disease prevention and control campaigns, it deals with particular problems as it emerges and it provides advice to the CVO and the NCC.

4.4. Disease investigation team

NEZRC is supported by disease investigation team from NAHDIC and specific Regional Animal Health team and Regional Veterinary laboratories in the field. The team is in charge of:

- Gathering of samples,
- Collection and interpreting information (Participatory Disease Search),
- Executing policy decisions (e.g. animal movement control, etc),
- Preparing and submission of situation reports on a regular basis (through telephone, written document, etc).

The disease investigation team is under day-to-day follow up of the CVO. Together with regions, the CVO is responsible for harmonising the work of the Disease investigation team in the field.

5. RVF risk assessment and management

5.1. Risk assessment

This risk assessment is qualitative and it is structured into three linked components. A *release assessment* which is the risk of introduction of RVF into Ethiopia, an *exposure assessment* the risk of susceptible livestock within Ethiopia becoming exposed to RVF infection and a consequence assessment which analyses the risk of infection of livestock, the risk of persistence of the virus and the risk of human infection within Ethiopia. The risk assessment is carried out in view of the inter-epidemic and epidemic phases of the disease.

As regards to *release assessment*, many species of mosquito in the genera *Aedes*, *Culex*, *Anopheles*, *Eretmapodites* and *Mansonia* have been shown to be capable of becoming infected with RVF virus under field conditions in Africa. *Aedes vexans arabiensis,* belonging to the same subspecies of *Aedes vexans* and the chief enzootic vector of RVF virus, was recorded in Ethiopia, Mauritania, Sénégal, Gambia, Ghana, Nigeria, Sudan, Somalia and South Africa. As RVF virus is maintained by transovarial transmission in mosquitoes during the years when it does not cause endemic diseases, epizootics of the disease occur in years of heavy rainfall. In these periods, the mosquito population is able to multiply and spread from the permanent water sites where they are normally maintained to breed in surface water in normally dry areas. Therefore, there is a medium risk of occurrence of the disease in the lowland parts of Ethiopia following high rainfall as a result of an increased likelihood of an El Nino effect.

On the other hand, RVF epidemics occur in Africa at irregular intervals of 3-15 years, usually associated with El Nino situations. Some times, the inter-epidemic periods can exceed twenty-five years, particularly, in arid and semi-arid situations where much of the lowland part of the country is belonging. This period is of low RVF risk as the rainfall levels are within normal or lower than normal limits.

From the recent outbreaks of the disease in Kenya and Tanzania in December 2006 and January 2007, respectively, it was realized that the disease epidemic moved from Kenya to Tanzania together with favourable situations like heavy rains and associated flooding. Therefore, it seems that the risk of virus spread in these countries was associated with ambient climatic and vector situations than movement of cattle and other animals as well as wind spread of infected mosquitoes.

As regards to *exposure assessment*, the presence of conducive ecological conditions in Ethiopia similar to that of the rest of the Horn of Africa would favour the establishment and spread of the virus and the occurrence of RVF epidemic in the lowland parts of the country. This may pose a significant risk of transmission of the diseases to livestock raised along communal grazing lands and to those which are kept in areas close to over flooded and irrigated areas. If epidemic situations occur in Ethiopia, the disease may spread from infected to non-infected areas through viraemic animals and infected mosquitoes. During such times, humans may also be exposed to the disease when slaughtering and handling infected animals and if they consume raw meat.

During the inter-epidemic period, the risk of transmission of the disease into livestock along the lowland parts of the country is negligible. However, there is a medium risk of exposure of livestock and humans along these areas if the disease reaches epidemic proportions as a result of an increased El Nino effect.

The *consequence assessment* concludes that if there is an epidemic situation of the disease in the lowland parts of the country, infection of livestock with RVF through exposure to infected and infectious vectors is highly likely, and that it may increase in case of multiple exposures.

The probability of persistence of RVF virus within these areas as a result of entry of infection into the greater vector population of these areas is considered higher than negligible, possibly much higher depending upon climatic conditions. The likelihood of infection of humans through handling or consumption of products derived from infected animals is considered higher than negligible for butchers, slaughterhouse staff and related occupations, and perhaps too optimistically even much higher during epidemic phases. However, this is considered to be negligible during the inter-epidemic periods.

5.2. Risk estimation

Inter-epidemic period: RVF virus activity is usually evident whenever riverine floodwater plains are inundated for prolonged periods and result in the formation of dambos or water pans. The situation allows for mosquito species to breed and colonize wider areas.

In areas with relatively high rainfall, some RVF virus activity may occur every 2-3 years. However, in the drier bushed and wooded grasslands, the epizootics occur in 5- to 15-year cycles and little or no RVF virus activity may be detected between epizootics. On the other hand, RVF virus activities occur in the arid and semi-arid areas more rarely at an interval of 35 years, although 15-30 years might be a more reliable range. However, it is highly unlikely for RVF virus activity to be detected during the inter-epizootic periods in the lowland parts of the country.

Epidemic period: Besides the existing serological evidence of the disease in Ethiopia, the geographical proximity of the country to RVF endemic countries like Kenya, Sudan and Somalia, the nature of livestock movements across the international border and the ease with which infected mosquitoes can be moved longer distances by the help of wind lead to the conclusion that Ethiopia will always be vulnerable to clinical RVF during the epizootic periods in neighbouring countries. Therefore during this period, there is medium risk of introducing RVF infected animals from neighbouring countries to Ethiopia.

5.3. Risk management

The risk of RVF can be summarized into three separate levels based upon known rainfall patterns and/or confirmed outbreaks of the disease. RVF epidemic is dependent upon flooding of specific mosquito habitats and thus periods of high risk are either when heavy rainfall or flooding makes outbreaks likely or after outbreaks of the disease are confirmed. Periods of rising risk (pre-epidemic periods) are when meteorological conditions predict increased probabilities of high rainfall, for instance increased likelihood of an *El Nino* effect. Periods of low risk (inter-epidemic periods) are when rainfall levels are within normal or lower than normal limits. Therefore, risk management options, which aim at reducing the risk of transmission of RVF in each of these three states, were recommended.

The recommendations resulting from this risk assessment include the development of early-warning systems based on prediction of RVF epidemics and setting up sentinel herds in high risk areas. The ecology of potential mosquito vectors needs to be better understood so that rises of multiplication and persistence can be better estimated. This includes setting up the required laboratory capacity

to be able to handle RVF diagnosis. Veterinary staff needs to be trained such that they are able to recognise the disease as early as possible.

5.3.1. Early warning planning

Early warning programmes are critical for RVF. Forecasting of the high probability of epidemics at least three months, and possibly up to six months, before they start in neighbouring countries will enable the country to mount an effective response against the disease. As the success of a country's capability for forecasting and rapid detection of outbreaks of RVF depends on continuous monitoring of factors that predispose its occurrence, the following methods are selected for early warning of RVF in Ethiopia.

i. Monitoring of climatic data

The occurrence of RVF outbreaks has been demonstrated to correlate with above normal rainfall. Periodic outbreaks of RVF over a 40 years period were found to collate with the positive values of a statistical data based upon the number rainy days and the quantity of rainfall. Therefore,

- a monthly NDVI data will be obtained by APHRD from the African Data Dissemination Service website and interpreted in order to monitor environmental situations that predispose RVF occurrence in the country. As a result, a network will be established with national, regional and international climate and RVF monitoring institutions (such as National Meteorology Authority, WFP and EMPRES). This will helps to obtain monthly regional risk assessment data on RVF.
- if climate data received from these sources show any indications for a likely occurrence of RVF virus activity, veterinary personnel in the field will be alerted by the CVO within TWO DAYS to follow the situation more closely. They will be informed to report if there is any unusually high rainfall, flooding and indications of RVF activity and vector build up in the area. The MoH will also be notified parallel to take appropriate measures

If information from field seems to be consistent with satellite data, the following activities will be undertaken in the areas.

ii. Active disease search

An investigation team composed of different disciplines (veterinary virologist and/or pathologist, epidemiologist and entomologist) will be mobilized into the suspected lowland areas of the country for investigation of clinical RVF within THREE DAYS following climate assessment reports by APHRD. In addition to investigation of the situation based on field observations, the team will take different samples for laboratory verification and if necessary send samples to regional or world reference laboratories.

iii. Serological survey

The investigation team will also undertake serological survey to determine presence of recent RVF infection in the suspected areas. For this, blood samples will be collected from these areas and analyzed at the National Animal Health Diagnostic and Investigation Centre (NAHDIC) within 7 days of report.

iv. Vector survey

In addition to clinical disease search and serological survey, the team will carry out investigation on the abundance and distribution of vectors that are responsible for RVF transmission and amplification. For this, entomological samples will be collected from these areas and analyzed at the National Animal Health Diagnostic and Investigation Centre (NAHDIC) within 7 DAYS of report.

v. Sentinel herd monitoring

After getting sufficient data on the status of RVF virus activity in the suspected areas, sentinel herds will be established within ONE MONTH following positive laboratory results in order to monitor the dynamics of RVF virus activities in these areas. For this,

- Arrangements will be made with livestock owners to ensure that the sentinel animals are available for regular inspection and sampling and that the animals are permanently identified.
- Incentives will be provided to these owners in the form of free anti-helminthic drugs to additional two untagged animals for every animal tagged. This will be made available from the regular budget of the APHRD.
- Sentinel herds will be investigated and bled 2-4 times per year and samples will be tested for IgM antibodies.
- Results will be used to support decisions with regard to declaration of RVF epidemic and following measures in suspected areas.

vi. Passive surveillance

Passive surveillance system that has been in place for many years in the country will be used to capture massive abortion cases mainly in small ruminants.

- Each Woreda in the country will be sending at least 10 quality reports per year.
- Each report should reach APHRD within 30 DAYS.
- On the other hand, all Woreda animal health personnel are obliged to report (compulsory reporting) to APHRD and respective regional animal health services of any RVF-like diseases within 24 hours.
- Positive passive surveillance results will instigate activities indicated under 5.2.1. (ii) above.

vii. Public awareness programs

In order to ensure early detection of RVF viral activities, it is highly essential to create awareness on the disease among the general public and livestock owners found along the high-risk areas of the country (flood prone areas). In this regard, continuous awareness of livestock owners, particularly community animal health workers will be made on the importance and identification of RVF through mass media. This helps to encourage the public to report, promptly, to the nearby health authorities (veterinary or public) any RVF like symptoms in livestock or humans.

5.3.2. Early reaction planning

While the aim of early warning is to rapidly detect the existence of RVF viral activity in an area, the purpose of early reaction is to minimize the socio-economic and public health impacts of the disease. When epidemiological, laboratory and environmental situations suggest that pre-epizootic condition of RVF is imminent; the first thing that APHRD and regions should do is define the area(s) that are likely to become infected. This will be based on the following points.

- Scientific evaluation of satellite and other data on weather patterns and vegetation growth.
- Information on topographical features such as altitudes, watercourses, dams, likely flood areas and irrigations, to demarcate the extent of potential mosquito breeding habitats
- Epidemiological and entomological evidence from field, gathered by active surveillance targeted to define the range of primary and secondary RVF vector species and likely density
- Distribution and density of susceptible livestock populations
- Historical information on the virus/disease distribution and epidemic behaviour during previous RVF outbreaks in neighbouring countries.
- Definition of potential extension zones for RVF in the country based upon ecological zones and livestock populations
- Estimation of likely duration for RVF virus propagation based upon historical ecological and climatic information

If information from the early warning activities is indicative of RVF epidemic and once the area(s) is/are clearly demarcated, APHRD in collaboration with regions should take the following measures.

i. Quarantine and movement controls

Effective quarantine and movement controls will assist to prevent spread of the virus by animals from one part of the country to the other. Even if the virus has established in an insect vector population, it will still be necessary to reduce the spread by animal movements. Initially, stringent controls on the movement and congregation of susceptible livestock will be imposed. These may be relaxed once the situation has been fully assessed.

ii. Disease prevention and control activities

Following suspicion/confirmation of RVF in the country, the following measures will be taken order to prevent further spread and minimize/avoid the socio-economic and public health impacts of the diseases.

- Local administrators, farmers and other stakeholders will be notified of the situation in order to restrict movement of all animals from the affected areas;
- The public will be informed to take the necessary precautions in order to prevent infection.
- Continuous awareness will be made to facilitate decontamination of livestock products and safe disposal of aborted foetus and other infectious materials;
- Trading partners will be continuously notified about the situation
- Export of animals from infected areas will be temporally suspended and animals will be exported from parts of the country that are apparently free from RVF;

- ❖ Animals destined for export will be vaccinated for RVF if agreement is reached with trading partners to do so.
- ❖ Until capacity is built for the production of vaccines domestically, there will be import of vaccines.

iii. Culling of infected animals

Culling of infected animals is highly dependent on compensation being available. It is very important to note that if effective quarantine and movement restriction measures are put in place, there is a greater chance of eliminating RVF virus from the infected areas before the virus becomes widespread in susceptible livestock, insect vector or uncontrolled wildlife population. Therefore, the first step will be to ensure that the virus is contained in the infected area. For this reason, strict movement controls will be imposed. Then the next step will be to eliminate the virus from the infected area(s) by culling clinical cases. Safety precautions that minimize exposure to blood and other body fluids will be adopted. Staff wearing protective half suits with portable air supplies (such as Vickers Medical high efficiency respirator), handle the animals. The area and clothing will be decontaminated by formalin or glutaraldehyde based disinfectants.

iv. Treatment of products and by-products

- ❖ Animals which originate from the infected zone must not be slaughtered for meat because of the high risk to humans during the slaughtering process. However, animals outside the infected zone may be sent to slaughter at an approved abattoir.
- ❖ Chilled or frozen meat is probably safe for consumption following storage and cooking.
- ❖ Milk from the infected zone must be pasteurised before consumption. If the milk cannot be pasteurised, then it must be disinfected by acidification.

v. Disposal of carcass and infected materials

Disposal of carcasses and infected materials will be carried out by burial. Dead animals will be buried without postmortem examination. If a postmortem is to be performed, then staff will be adequately protected against exposure to the virus.

vi. Decontamination

The survival of RVF virus in the environment is limited and it is susceptible to acid pH. Because RVF virus only survives for a short time on fomites, decontamination of inanimate objects is not so important in the control of the disease. However, blood may remain contaminated for up to 4 months at 25°C. Although fomites have not been incriminated in the spread of RVF, places such as abattoirs or laboratories may remain infective for several weeks. Therefore,

- ❖ The surface of all areas contaminated with blood splash will be sprayed with a suitable disinfectant, e.g. 2% acetic acid.
- ❖ At all stages of decontamination, steps will be taken to prevent the generation and dispersal of infective dusts and aerosols.
- ❖ Barns used to house infected livestock will be decontaminated.

vii. Vaccination

Ethiopia does not allow vaccination of animals against Rift valley fever. Until now, epidemic proportions of the disease were not recorded in any part of the country. However, in events of an outbreak of Rift valley fever in neighboring countries, it is possible to carry out emergency ring vaccination against the disease along the international border to protect the introduction of the disease into the country. The country will consult trading partners when taking appropriate decisions to protect the export trade.

The most likely source of this vaccine is the Veterinary Research Institute, Onderstepoort, South Africa. The vaccine should be administered twice, separated by an interval of 2–4 weeks. Attenuated vaccines are available from South Africa and Kenya. Although more effective than the inactivated vaccine, they pose serious problems because of their side reaction (abortions and birth defects), the need to ensure they are free of exotic agents, and the possibility of insect transmission and reversion to virulence. The use of attenuated vaccines should only be considered if RVF spreads beyond the initial infected area.

viii. Vector control

The situations which favor RVF epidemics also favor multiplication of mosquitoes which transmit malaria in humans. For this reason, the MoH and MoARD will integrate insecticide spray measures to the extent that it brings about significant impacts on the spread of both diseases.

ix. Surveillance

a. Livestock

Livestock held in the infected areas as a result of quarantine and movement restrictions will be followed for clinical signs of the disease. Disease investigation staff will be deployed in the infected area and blood samples will be taken at TWO WEEKS intervals from a statistically valid sample of animals. Samples will be sent to NAHDIC the following day of collection and tested for RVF IgG and IgM antibodies. This testing will commence following the index case and continue for SIX MONTHS following the last confirmed case. Serological monitoring will then be continued at quarterly intervals for a further ONE YEAR.

b. Vectors

In the event of an outbreak, surveillance for vectors can be either for virus isolation or to record the current population of biting insects. Collection for virus isolation is labour and expertise intensive. Surveillance for vectors will be limited by the personnel available with the taxonomic capacity for accurate identification of vectors collected as live insects. Based on this, vectors will be identified immediately and only relevant species will be examined. Collections made purely for population analysis will be made by 'unskilled' labour after brief instruction. An adequate number of odor baited light traps will be used for this purpose.

c. Sentinel herd monitoring

Sentinel herds will be used to monitor the disease in the infected zone. In the absence of transovarial transmission, a period of six weeks will suffice. If transovarial transmission is likely, the period will be extended up to one year depending on the weather (particularly rainfall). This will be decided based on larval sampling and isolation of the virus. Serological monitoring will be conducted at monthly intervals for one year and quarterly for the next two years to demonstrate freedom from the disease. A decision on when to consider freedom of the infected area from the disease will be made after taking epidemiological factors into account, e.g. presence and type of vectors and the presence/absence of disease in bordering countries.

x. Public awareness

Public awareness programs will be mounted by the MoARD, in collaboration with MoH. Because of the public health significance of RVF, it will be necessary to ensure that the public is kept fully and accurately informed.

- Producers will be informed of the symptoms of RVF and what to do if they suspect it in their herd. There is likely to be a loss of consumer confidence in products such as meat, milk and wool although these items, as normally processed, present no risk. On the other hand, items such as raw milk may present a risk to consumers if the milk is derived from infected animals.
- A media information kit will be made available as soon as the disease is diagnosed.

6. Core activities and responsibilities

6.1. Inter-epidemic period

Core activity	Sub activity	Responsible body	Material/personnel requirements
Strengthening the capacity of the veterinary services in the country	The government should secure adequate funding for various activities,	MoARD	Manpower (staffing and training) Budget Legal support (policy on vaccination, culling and compensations)
Surveillance and diagnosis	Assess climatic and satellite data from FAO for early warning	FAO, AHD	Internet connection, training, pro-med subscription
	Capacity building for RVF Surveillance Diagnosis Disease mapping Vector identification	AHD, NAHDIC	Training, sentinel herds establishment with necessary incentives (e.g. free anthelmintic treatments, etc), sampling materials,
	Preparation of training manuals	AHD, NAHDIC, NVI	budget
	Establishing core team and contact person at the MoARD and BoARD levels	AHD, BoARD	Letter of assignment
	The MoARD should establish good early warning system and make use of available climatic and satellite data for RVF detection,	AHD	EMPRESS newsletter
	NAHDIC should build its capacity to conduct vector ecology survey (biological vectors/mechanical vectors) and isolate/detect RVF virus in vectors	AHD, NAHDIC	Training, survey materials
Surveillance and…	The MoARD should strengthen the reporting of major diseases by introducing a system of accountability of district veterinary services,	AHD, BoARD	Discus with Regions on modalities of integrating disease reporting into BPR and result oriented evaluation systems
Disease management	The MoARD should establish and strengthen partnership with stakeholders (e. g. the MoH, etc),	AHD	Information network, regular meetings
	Permanent and key RVF persons with clear TOR must be assigned at Federal and Regional levels,	AHD, MoH, BoARD, BoH	Letter of assignment, TOR

Core activity	Sub activity	Responsible body	Material/personnel requirements
	Depending on requirements of trading partners, arrange mechanisms to vaccinate export animals with RVF vaccine,	AHD, NVI	Ice box, RVF vaccine, vaccination syringe, needle, training
	Livestock trade routes should be identified and mapped,	MoARD	Mapping software
	RVF risk based stock movement control permits should be developed,	AHD	Risk map, Circular letter
	Training/capacity building should be conducted for Regions on cold chain, storage, dispatch, etc of RVF vaccine (additional training requirements need to be assessed and listed down),	NAHDIC, NVI	Training, handouts
	RVF vaccines should be procured and stockpiled until NVI builds its capacity	AHD, NVI	Budget, proforma, cold storage
	The capacity of NVI should be built to produce RVF vaccine locally	MoARD, NVI	Equipment, training, budget
	The MoARD should conduct resource (staff, infrastructure, etc) inventory along high RVF risk areas	AHD, NAHDIC	Telephone, field trip, documentation
Communication	Communication and awareness creation programs should be conducted for vet services at grass root levels,	AHD, Regional AHS	Communication materials, handouts, brochures, budget
	Workshop and seminars for awareness creation for Federal, laboratory and regional staff at high risk areas	AHD, Regional AHS, NAHDIC	Communication materials, handouts, brochures, budget
	The Federal and Regional AHS should plan and work together to establish better information system	AHD	Disease reporting database at Regional level, telephone, internet connection
	Communication materials must be agreed upon and prepared,	AHD, NZDECC	Communication materials, handouts, brochures,
	There should be a mechanism for information exchange among stake holders,	AHD, , NZDECC	Internet connection, report

6.2. Pre-epidemic period

Core activity	Sub activity	Responsible body	Material/personnel requirements
Surveillance and diagnosis	Serological and clinical surveillance	NAHDIC, Regional labs	RVF Sampling materials, case definition, WRL
	RVF risk areas should be identified, mapped and delineated based on lab results, altitude, temperature, rainfall, flooding, soil, vegetation, mosquito habitats, etc,	AHD, NAHDIC, BoARD, Regional Labs.	Mapping system, GPS, meteorological data
	Virological investigations on suspected samples	NAHDIC, Regional Labs.	RT PCR, sampling kit
	Vector identification	NAHDIC	Stereo microscope, WRL
	Laboratory training for NAHDIC at WRL	NAHDI, MoARD	Budget
	Surveillance training (field staff and livestock owners)	AHD, Regional AHS, NAHDIC	Handouts, guidelines
	Emergency preparedness (resource inventory)	AHD, NZDECC , Regional AHS	EP/CP document, telephone, field trip, documentation
	The MoARD should monitor high rainfall/flooding and high vector density along RVF risk areas,	AHD, Meteorological services	Meteorological data
	The MoARD should make available adequate Emergency Preparedness Plan for mobilization of field and lab services	MoARD	EP Plan/CP
	RVF compatible syndromes (mass abortion, death in young, etc) must be closely monitored and reported	Regional AHS & labs	Case definition guidelines
	The MoARD should establish sentinel herd monitoring in high risk areas as part of early RVF detection system	AHD, NAHDIC, Regional Labs	Ear tag, applicator, incentive, (anthelmintic), sampling kit

Core activity	Sub activity	Responsible body	Material/personnel requirements
Disease management Communication	The MoARD must keep informing trading partners on the status and risk of RVF and efforts taken to counter its spread,	AHD	Website, status report
	The MoARD should impose risk based livestock movement control along high risk areas,	AHD, Regional AHS, Regional/Woreda administration	Risk map, Circular letter
	Cattle, shoats and camels found along high risk areas should be vaccinated with RVF vaccine,	AHD, Regional AHS, NVI	Ice box, attenuated RVF vaccine, vaccination syringe, needle, training
	Training on disease management for field and laboratory personnel	AHD, NAHDIC	Training manual
	Resource inventory (human and material) required for disease management activities	AHD, NZERC	Telephone, field trip, documentation
Communications	The public should be alerted on means of transmission and consequences of RVF virus infection as well as personal protection measures against the disease,	MoARD, MoH, NZERC, **EVA**	Radio, hotline, brochures, poster, budget
	Communication packages on vaccination should be agreed upon and prepared for livestock owners, journalists, politicians, etc.	AHD, NZERC, **EVA**	Radio, hotline, brochures, budget
	Workshop and seminars with invited international experts on epidemiology and diagnostics	AHD, NAHDIC	Laptop, projector

6.3. Epidemic period

Core activity	Sub activity	Responsible body	Material/personnel requirements
Surveillance and diagnosis	Serological, clinical and virological surveillance with support from World reference laboratory	NAHDIC, Regional labs, AHD	Sampling kit
	Submission of laboratory results to MoARD the earliest possible time	NAHDIC	Report
	Refresher training on surveillance and diagnosis	NAHDIC	Training manual, budget
Disease management	Declaration of RVF outbreak to OIE	AHD	Status report
	Demarcation of outbreak site	AHD, Regional AHS, local administration	Mapping facility, GPS
	The MoARD should impose risk based livestock movement control along epidemic foci and high risk areas,	AHD, Regional AHS, local administration	Risk map, Circular letter
	Apply strict bio-security measures to contain the disease and minimize the spread	AHS, Regional AHS, local administration	Bio-security guidelines, CP
	The MoARD and MoH should plan and implement a joint action plan to contain the spread of the disease to other areas,	MoARD, MoH, NZERC	CP and action plan
	The MoARD should cease export of animals from infected and suspected areas,	MoARD, Private operators, local administration	Circular letter

Core activity	Sub activity	Responsible body	Material/personnel requirements
	The MoARD must keep informing trading partners on the status and risk of RVF and efforts taken to counter its spread.	AHD	Status report
Communication	The public should be aware on means of transmission and consequences of RVF virus infection as well as personal protection measures against the diseases,	MoARD, MoH, NAHDIC, NZERC, EVA	Radio, hotline, brochures, poster, budget
	The public should be aware of the situation to comply with the disease control options	MoARD, MoH, NAHDIC, NZERC, EVA	Radio, hotline, brochures, poster, budget

7. Personnel and institutional resources

7.1. Staff

At Regional and Federal levels, list of the staff to deal with a disease emergency is available. APHRD in collaboration with NAHDIC is responsible for the provision of training on RVF surveillance and control methods at Regional levels. Apart from this, APHRD is responsible for ensuring that well qualified personnel, specialized in Rift valley fever is available and that they can be deployed when ever there is a suspicion of the disease in neighboring countries. This contingency plan includes the names and addresses of key veterinarians in Ethiopia.

7.2. List of institutions, contact persons and addresses

Institution	Name contact persons	Contact Address				Remarks
		Office Phone	Mobile Phone	E-mail	P.O. Box	
Minister, MoARD Chairman, National Zoonotic Diseases Emergency Coordination Committee (**NZDECC**)	H.E. Ato Addisu Legesse	011 5522261	XXXXXXXXXXX		62347	Issues of concern at a national level and to be addressed by the **NZDECC**
Minister, MoH, Co-Chairman, National Zoonotic Diseases Emergency Coordination Committee (**NZDECC**)	H.E. Dr Thewodros Adhanom	011 5517011 Ext. 216	XXXXXXXXXXX			
State Minister, MoARD, Secretary, National Zoonotic Diseases Emergency Coordination Committee (**NZDECC**)	H.E. Dr Abera Deressa	011 5522276	XXXXXXXXXXX		62347	Issues of concern at a national level and to be addressed by the NEZRC Outbreaks, disease management, diagnosis and communication functions

Institution	Name contact persons	Contact Address				Remarks
		Office Phone	Mobile Phone	E-mail	P.O. Box	
Head, Animal Health Services, Chairperson, National Zoonotic Diseases Emergency Technical Committee **(NZDETC)**	Dr Amsalu Demissie	011 5536334	0911 409067	tseddey@yahoo.com.au, nat.pace@ethionet.et		Regular passive and active RVF surveillances Outbreak investigations Decision on disease management schemes (bio-security, culling, compensation, vaccination, movement control, etc)
Head, Disease Prevention and Control Department Co-Chairperson, National Zoonotic Diseases Emergency Technical Committee **(NZDETC)**	Dr. Zerihun Tadesse	011 5159682				
Head, National Animal Health Research Centre (NAHDIC)	Dr Mesfin Sahile	011 3380894/98	0911933248			Issues related to surveillance of suspected outbreaks and diagnosis

Institution	Name contact persons	Contact Address				Remarks
		Office Phone	Mobile Phone	E-mail	P.O. Box	
RVF Laboratory Unit Head, NAHDIC	Dr Melesse Balcha	011 3380894/98	0911868942			Surveillances of suspected outbreaks, sample submission and related arrangements Confirm reception of laboratory samples, processing and results
Other Key person dealing with RVF at NAHDIC	Ato Africa Teferi	011 3380894/98				Confirm reception of lab. Samples, processing and results
Director General, National Veterinary Institute (NVI)	Dr Berhe Gebreegziabher	011 4338411	0911 254377			RVF vaccine storage, dispatch Assistance on laboratory diagnosis during outbreak pressure Other expertise contribution
Chairperson, National Advocacy and Communication Sub Committee	Ato Ahimed Emano	011 5517011 Ext. 203 011 5511392	0911 941869			Provision of accurate, timely, simple and consistent RVF communication

Institution	Name contact persons	Contact Address				Remarks
		Office Phone	Mobile Phone	E-mail	P.O. Box	
FAO/MoARD AI project National Coordinator	Dr. Yilma Jobre	011 5511392	0911 408220	Yilma.Jobre@fao.org		Coordinate and follow up national RVF surveillance and diagnostic activities Advice MoARD on RVF prevention and control
National Emergency Operation Centre Focal Person and FAO National Consultant	Prof. Getachew Abebe	011 5543272	0911-407260	Getachew.Abebe@fao.org		Follow up RVF activities undertaken by various stakeholders Technical backstopping during the implementation of RVF outbreak containment
Ethiopian Veterinary Association	Dr Laikemariam Yigezu, President Ato Mulushoa Besha, Office Manager W/t Kalkidan Negash, Secretary	011 5525020	0911 686326 0911 403068 0911 346885	eva.hq@ethionet.et		Participate in the prevention and control of RVF Mobilize members to actively engaged in the application of AI control options
Ethiopian Assistant Veterinary Association						

Afar Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Awol Arba Deputy Head: Amin Abdulkadir	0336660109 0336660107	0911483840 0911461927	-
Animal Health Services	Head: Dr. Melese Bedane Deputy Head: Arage Tiku	0336660109 0336660109	0911079183 0911796160	sileshimekonnen@yahoo.com
Regional Veterinary Laboratory	Head: Deputy Head:	-	-	-
Regional Coordination Committee	Chairperson: Awol Arba Co-Chairperson: Amin Abdulkadir Secretary: Alemu Ebsa	0336660109 0336660107	0911483840 0911461927	-
Regional Technical Committee	Chairperson: Alemu Ebsa Co-Chairperson: Dr. Yenew Tizazu Secretary: Dr. Melese Bedane	0336660109 0336660016 0336660109	0911967222 0911989200 0911079183	sileshimekonnen@yahoo.com
Regional Advocacy and Communication Sub Committee	Chairperson: Hussein Mohammed Co-Chairperson: Dr. Gezahegn Eshete Secretary: Dr. Yalelet Worku	0336660109 0336660109 0336660109	0911136052 0911119608	sileshimekonnen@yahoo.com
Head, Regional Emergency Operation Centre	Dr. Melese Bedane	0336660109	0911079183	sileshimekonnen@yahoo.com
Store Keeper				
FAO National Consultant	Dr. Sileshi Mekonnen	0336660572	0911445844	Sileshi.mekonnen@fao.org sileshimekonnen@yahoo.com

Amhara Region State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Ato Tefera Derebew Deputy Head: Ato Teshome Walle	O582201366	0918340129	
Animal Health Services	Head: Dr Kassa Teferi Deputy Head:	O582205851	0918781376	
Regional Veterinary Laboratory	Head: Dr Darsema Gulima (Bahir Dar) Head: Dr Girma Abeto (kombolcha)	0582200017 033510020	0918701155 0911830110	
Regional Coordination Committee	Chairperson: H.E. Ato Demeke Mekonnen Co-Chairperson: Ato Tefera Derebew	0582201366	0918340129	
Regional Technical Committee	Chairperson: Ato Aklilu Woldu Co-Chairperson: Dr Kassa Teferi	0582202603 O582205851	0918765190 0918781376	
Regional Advocacy and Communication Sub Committee				
Head, Regional Emergency Operation Centre	Dr Zewdu Belay	0582205851		pastzewdubelay@yahoo.com
Store Keeper				
FAO National Consultant	Dr Alekaw Sinshaw	0582222071	0918764142	Alekaw.Sinshaw@fao.org

Benshangul Gumuz Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Dr Mekonnen Golasa Deputy Head: Ato Abdul-Mamud Ibrahim Mohammed	0577750178 0577750919	0911-853004 0911-790894	
Animal Health Services	Head: Dr Kassaye Erkihun Deputy Head: Dr Mollalegn Bitew	0577750151 0577750151	0911-564098 0911-735280	Molalegne23@yahoo.com
Regional Veterinary Laboratory	Head: Dr Tefera Alemu Deputy Head:	0577750412		
Regional Coordination Committee	Chairperson: H.E. Ato Yaregal Ayisheshum Co-Chairperson: Dr Mekonnen Golasa Secretary: Ato Abera Asfaw	 0577750178 0577750151	 0911-853004	
Regional Technical Committee	Chairperson: Ato Abera Asfaw Co-Chairperson: Ato Getachew Habte Secretary: Dr Kassaye Erkihun	0577750151 0577750171	 0911-564098	
Regional Advocacy and Communication Sub Committee	Chairperson: Co-Chairperson: Secretary:			
Head, Regional Emergency Operation Centre	Dr Tefera Alemu			
Store Keeper				
FAO National Consultant	Dr Ademe Zerihun	0577750412	0911-408137	ademe.zerihun@fao.org

Dire Dawa Administrative council

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Ato Abdurehman Aliye Deputy Head:	0251110460	0915734935	ddagroff@ethionet.et
Livestock development department Animal health service	Head: Ato Masresha Yimer Team Leader: Dr. Fasika Belete	0251110460 0251110460	0911712010	fasikabelete@yahoo.com
Regional Veterinary Laboratory	Head: Dr. Fantu Ashine Deputy Head:	0251114177	0915737153	
Regional Coordination Committee	Chairperson: Ato Mehamed Amin Co-Chairperson: Dr. Abdurehman Alye Secretary: Ato Masresha Yimer	0251121098 0251110460 0251110460	0915734935	ddagroff@ethionet.et
Regional Technical Committee	Chairperson: Ato Masresha Yimer Co-Chairperson: Dr. Gebremedhin Aklilu Secretary: Ato Ermias Desalegn	0251110460 0251112330 0251112330		ddagroff@ethionet.et
Regional Advocacy and Communication Sub Committee	Chairperson: Not established Co-Chairperson: Secretary:			
Head, Regional Emergency Operation Centre	Dr. Fasika Belete	O251110460	0911712010	fasikabelete@yahoo.com
Store Keeper	Mestawot W/Agegn	0251110460	0915761038	
FAO National Consultant	Dr. Yosef Seyoum	0257757491	0915741455	Yosef.Seyoum@fao.org

Gambella Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Engineer Olero Opieo Deputy Head: Ato Mach Koth	047 5510229 047 5511475	0911 755297	
Animal Health Services	Head: Dr Belachew Tefera		0911 746308	
Regional Veterinary Laboratory				
Regional Coordination Committee	Chairperson: H.E Ato Umad Ubong Co-Chairperson H:E Ato Guaner Yef Secretary: Engineer Olero Opieo	047 5510003 047 55101031 047 5510229	0911 755297	
Regional Technical Committee				
Regional Advocacy and Communication Sub Committee				
Head, Regional Emergency Operation Centre				
Store Keeper				
FAO National Consultant	Dr Miressa Keno		0911 406014	Miressa.Keno@fao.org

Harari Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Ato Abdiqadir Aden Deputy Head: Dr. Sultan Haji Temam	0256666686 0256660449	- 0915330465	sultan2ht@yahoo.com
Animal Health Services	Head: Ato Belayneh Niguse Team Leader: Firdaweq Tesfaye	0256661794 0256661794	0915740933	
Regional Veterinary Laboratory	Head: - No lab Deputy Head: No lab			
Regional Coordination Committee	Chairperson: Ato Murad Abdulahi Co-Chairperson: Ato Abdiqadir Aden Secretary: Dr. Kassa	025661727 0256666686 0256661733		
Regional Technical Committee	Chairperson: Dr. Sultan Haji Temam Co-Chairperson: Secretary:	0256666686	0915330465	sultan2ht@yahoo.com
Regional Advocacy and Communication Sub Committee	Chairperson: Co-Chairperson: Secretary:			
Head, Regional Emergency Operation Centre	Dr. Fekadu Belay	O256663324	0915743284	fkadu_belay@yahoo.com
Store Keeper				
FAO National Consultant	Dr. Yosef Seyoum	0257757491	0915741455	Yosef.Seyoum@fao.org

Oromiya Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Driba Kuma Deputy Head: Tadese Guta	011515158907	0911407015 0911894259	
Animal Health Services	Head: Dr Dereje Gudeta Deputy Head: Dr Ahimed Ibrahim	011515158907 0115522208	0911708034 0915320246	
Regional Veterinary Laboratory	Head: Dr Hailu Wondimu (Asela) Deputy Head: Dr Yohanes Head : Dr Adugna Tadese (Bedelle) Deputy : Dr Aster Tadese Head : Dr Bekele Biru (Hirna) Deputy: Dr Ketema Bogale	0223311324 0223313428 0474450169 0474450170 0254410439 0254410439	0911841050 0912120889 	
Regional Coordination Committee	Chairperson: Dirba Kuma Co-Chairperson: Dr Zenebech Yadete Secretary: Dr Dereje Gudeta	 0115527306 0115158907	0911407015 0911708034 	
Regional Technical Committee	Chairperson: Dr Dereje Gudeta Co-Chairperson: Dr Kedir Mohamed Secretary: Dr Ahimed Ibrahim	0115158907 0115527306 0115522208	0911 70 80 34 0915320246 	
Regional Advocacy and Communication Sub Committee	Chairperson: Information and communication Bureau Co-Chairperson: Tourism and trade Bureau Secretary: Fekadu Tefera	0111573193 0115505966 0911347312	 	
Head, Regional Emergency Operation Centre	Dr Ahimed Ibrahim	0915320246		
Store Keeper				
FAO National Consultant	Dr Tesfaye Alemu	0115522208	0911866928	Tesfaye.Alemu@fao.org

SNNP Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Ato Mulugeta Fetene Deputy Head: Ato Usman Surur Siraj	(0462) 208843 (0462) 205400	(0916) 823356 (0911) 387939	
Animal Health Services	Head: Dr Daniel Mulugeta	(0462) 201317	(0916) 827572	
Regional Veterinary Laboratory	Head: Dr Terzu daye (Soddo) Dr Zewdu Dagne (Mizan)	(0465) 512593 (0473) 351113	(0916) 831914	
Regional Coordination Committee	Chairperson: Ato Tsegaye Mamo Ato Mulugeta Fetene Co-Chairperson: Dr. Shiferaw T/Mariam Secretary: Ato Goa Mamo	(0462) 206167 (0462) 208843 (0462) 209209 (0462) 201317	(0911) 228725 (0916) 823356 (0911) 237530 (0912) 009231	 Goa_mamo@yahoo.com
Regional Technical Committee	Chairperson: Ato Goa Mamo Co-Chairperson: Ato Demise Burbamo Secretary: Dr Daniel Mulugeta	(0462) 201317 (0462) 205950 (0462) 201317	(0912) 009231 (0912) 050659 (0916) 827572	
Regional Advocacy and Communication Sub Committee	Chairperson: Ato Alemu Zewde Co-Chairperson: Hussen Abdu Secretary: Tsehay Assefa	(0462) 206139 (0462) 202042 (0462) 209209	(0916) 580387 (0916) 828822	
Head, Regional Emergency Operation Centre	Dr Daniel Mulugeta	(0462) 201317	(0916) 827572	
Store Keeper				
FAO National Consultant	Abel Mersie (Dr)	(0462) 216760	(0915) 732919 (0911) 056033	

Tigray Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: H.E Berhane Hailu Deputy Head:	034440 40 10	0914 709382	berhanehai@yahoo.com
Animal Health Services	Head: Dr Kebede W/Giorgis Deputy Head:	03444 40 10	0914 72 48 15	
Regional Veterinary Laboratory	Head: Dr Girmay W/Selassie Deputy Head:	0344 403665	0914 720038	girmayewelde@yahoo.com
Regional Coordination Committee	Chairperson: H.E Ato Tsegay Berhe Co-Chairperson: Secretary:		xxxxxxxxxxxxx	
Regional Technical Committee	Chairperson: Dr Kebede W/Giorgis Co-Chairperson: Secretary:	03444 40 10	0914 72 48 15	
Regional Advocacy and Communication Sub Committee	Chairperson: Co-Chairperson: Secretary:			
Head, Regional Emergency Operation Centre	Dr Kebede W/Giorgis	03444 40 10	0914 72 48 15	
Store Keeper				

Somali Regional State

Key Responsibility Centres and Offices	Name of key contact persons	Contact Address		
		Office Phone	Mobile Phone	E-mail
BoARD	Head: Ato Abdulahi Aden Deputy Head: Dr. Ahmed Mohamed	0257753584 0257754980	0915330178 0915330193	abdullahidn@yahoo.com xarshin34@yahoo.co.uk
Livestock Development Department Animal Health Service	Head: Dr. Abdihakim Mohamed Team Leader:Dr.Getahun Bizabih	0257754980	0911809217	hanimco2005ets@yahoo.com
Regional Veterinary Laboratory	Head: Eshetu Zewde (acting) Deputy Head:	0257756950	0915745112	
Regional Coordination Committee	Chairperson: Ato Abdulahi Hussen (president) vice-Chairperson: Ato Abdulahi Aden Secretary:Dr. Ahmed Mohamed	0257752914 O257753584 0257752681	0915330178	abdullahidn@yahoo.com
Regional Technical Committee	Chairperson: Dr Abdihakim Mohamed Co-Chairperson:Dr. Abdurehman Abdulahi Secretary: Dr Yosef Seyoum (FAO)	0257754980 0257752681 0257757491	0911809217 0915741321 0915741455	kalane54@hotmail.com Yosef.Seyoum@fao.org
Regional Advocacy and Communication Sub Committee	Chairperson: Co-Chairperson: Secretary:			
Head, Regional Emergency Operation Centre	Dr. Getahun Bezabih	O257753584	0915744010	drgetahun@yahoo.com
Store keeper	Ato Ejigayehu Habte	0257756950	0911792484	
FAO National Consultant	Dr. Yosef Seyoum	0257757491	0915741455	Yosef.Seyoum@fao.org

8. Human Resource

8.1. Federal

Federal	Classification	Federal Institutes						Remarks
		MoARD	NAHDIC	NVI	EHNRI	FVM/ AAU	IPB/AAU	
	Veterinarians	71	24		**4**		5	
	Animal Health Assistants	7	11		3	15	1	
	Animal Health Technicians	94*						*89 Lab Technicians
	Meat inspectors	22						

8.2. Regional

Regions	Classification	Number of animal health professionals						Remarks
		Regional Office	Regional Laborato	Zone	Woreda	Private	Others*	
Addis Ababa	Veterinarians	3	2		7			
	Animal Health Assistants		9		30*			*24 meat inspectors
	Animal Health Technicians				6			
	CAHWs							
Afar	Veterinarians	4	-	-	10	-	-	
	Animal Health Assistants	1	-	-	29	1	-	
	Animal Health Technicians	-	-	-	30	-	-	
	CAHWs	-	-	-	669	-	-	
	Number of personnel trained in Bio-security, culling and vaccination	3	-	-	60	-		
Amhara	Veterinarians	1	22		54		2*	Meet inspectors
	Animal Health Assistants		31	9	218		20 *	Meat inspectors
	Animal Health Technicians							
	CAHWs				1116			
Benshangul Gumuz	Veterinarians	3	3	-	2	1	1	
	Animal Health Assistants	-	2	-	30*	-	-	*Assosa Technical and Vocational Institute
	Animal Health Technicians	-	-	-	27	-	-	
	CAHWs	-	-	-	-	58*	-	*50 of them will be trained in April
Dire Dawa	Veterinarians	1	4				1*	*quarantine
	Animal Health Assistants	1	4		6		5*	*abattoir
	Animal Health Technicians	1			20		3*	*abattoir
	CAHWs							

Regions	Classification	Number of animal health professionals						Remarks
		Regional Office	Regional Laborato	Zone	Woreda	Private	Others*	
Harari	Veterinarians	2						
	Animal Health Assistants	2			4			
	Animal Health Technicians							
	CAHWs				6			
Gambella	Veterinarians	1		2				
	Animal Health Assistants	1		4	1			
	Animal Health Technicians			40				
	CAHWs			45				
Oromiya	Veterinarians	6	11	9	94			
	Animal Health Assistants	2	16	4	377			
	Animal Health Technicians	-	6		884			
	CAHWs							
SNNP	Veterinarians	3	10	5	36	1	9*	*8 Vets (University) 1 vet (Municipality)
	Animal Health Assistants	1	8	1	170	5	5*	* 5 AHA Urban administration
	Animal Health Technicians	1	10	-	311	17	1*	* 1AHT Urban administration
	CAHWs					91		
Somali	Veterinarians	4			7		1*	*research
	Animal Health Assistants		2		59	2		
	Animal Health Technicians		2		>395			
	CAHWs				>1047			

Regions	Classification	Number of animal health professionals						Remarks
		Regional Office	Regional Laborato	Zone	Woreda	Private	Others*	
Tigray	Veterinarians	3	6		34		14 *	*University
	Animal Health Assistants				75			
	Animal Health Technicians				53			
	CAHWs				286			

9. Resource inventory

Items	Regions											Total
	NAHDIC	Afar	Amhara	Benshagul	Dire Dawa	Gambella	Harari	Ormia	SNNP	Somali	Tigray	
Antiviral disinfectant (Kg/Packs)												
Apron white, Disposable pack of 100												
Bio-hazard labels pack of 10												
Chlorine bleach 10% (lits)												
Coverall blue Elas Medium CS25												
Coverall Blue Elas SM												
Coverall blue Elas XL. CS25												
Coverall white Elas Medium. CS25												
Coveralls (pack of 25)												
Decontamination kit SK960												
Disposable Apron (cases)												
Disposable boot cover (pairs)												
Disposable Gloves (case of 100)												
Disposable head cover(pcs)												
First aid kits (Pcs)												
Ear tag (plastic)												
Ear tag applicator												
Goggle, safety protector												
Ice box (Pcs)												
IgG ELISA for RVF												
IgM ELISA for RVF												
Knapsack sprayers (Pcs)												
Large plastic bags (kgs)												
Latex glove pack of 100												
N-95 mask(pcs)												
Plastic gallons (Pcs)												
Rubber boot (Pairs)												
Safety goggles (pcs)												
	Regions											

Items	NAHDIC	Afar	Amhara	Benshagul	Dire Dawa	Gambella	Harari	Ormia	SNNP	Somali	Tigray	Total
Sampling kits												
Shoe cover pack of 75												
Syringes with needles (Pcs)												

10. Classifying declared areas

Area	Activities	Measures
Infected (IP), dangerous contact and suspect premises (DCP): IP: A premises on which RVF is confirmed or presumed to exist—total movement control is imposed. DCP: A premises containing susceptible animals that have been on an IP—total movement control is imposed.	*Movement out of susceptible animals*	❖ Prohibited
	Movement in of susceptible animals:	❖ Prohibited
	Movement out of specified products:	❖ Milk must be acidified and buried. ❖ Other ruminant products including camel must be destroyed.
	Movement out of other animals:	❖ No movement of any animal capable of being naturally infected.
	Movement in and out of people:	❖ People will be advised to use insect repellent and appropriate clothing. Only authorized personnel will be allowed on to infected premises. Personnel and stockowners and their families who have been on an infected premise must undertake to contact the Chief Medical Officer of the area where they are at the time of developing symptoms to report any symptoms that might be due to Rift Valley fever.
	Movement in and out of vehicles and equipment:	❖ Vehicles leaving an infected premises or dangerous contact premises must be sprayed with a knockdown aerosol insecticide. ❖ Water holding containers should be removed or sprayed and then covered
	Movement out of crops and grains:	❖ No restriction.

Area	Activities	Measures
Restricted area (RA): will be drawn around all IPs and DCPs. The distance in any one direction is determined by factors such as livestock concentrations, the weather and prevailing winds, the distribution and movements of susceptible wild animals, the presence of possible vectors, and should be at least 10 km from the location of any known infected animals. It is important to prevent the spread of the disease by animal movements although some local spread my still occur due to aerosols. A distance of 10 km should ensure that the disease will be contained if there is no insect vector spreading the disease and no illegal movement of animals. A high level of movement control and surveillance will apply.	*Movement out of susceptible stock:*	❖ No ruminants may leave restricted area except fully immune vaccinated animals under permit.
	Movement in of susceptible stock:	❖ No ruminants to enter restricted area.
	Movement within of susceptible stock:	❖ Not allowed (except within a property) but fully immune vaccinated animals may move under permit.
	Movement through of susceptible stock:	❖ Not allowed
	Movement of specified products:	❖ Milk must be boiled or pasteurised. ❖ Semen/embryos, movement out prohibited. Other ruminant products under permit.
	Movement of other animals, people, equipment:	❖ No restriction. People should be advised to see their doctor if they develop symptoms consistent with RVF.
	Vehicles:	❖ No restriction.
	Sales, shows etc:	❖ Not allowed.
	Enterprises:	❖ Abattoirs can only receive under permit and all staff must be fully briefed as to the human health risk of RVF. Milk factories can receive under permit and supervision. Milk must be boiled or pasteurised as soon as possible and equipment disinfected as directed.
	Stock routes, rights of way:	❖ No movement.

Area	Activities	Measures
Control area (CA): will be imposed around the RA. The purpose of the CA is to control movement of susceptible livestock for as long as is necessary to complete trace-back and epidemiological studies. Less stringent movement control and surveillance will apply than for the RA. Once the limits of the disease have been confidently defined, the CA boundaries and movement restrictions should be relaxed or removed. However, if the disease becomes widespread in an insect vector population, the CA may be expanded to include that vector's known geographical range. The CA must include all premises adjacent to known IPs. (In settled areas adjacent premises are likely to be part of the RA.)	*Movement out of susceptible stock:*	❖ Ruminants may be sent for slaughter at an approved abattoir under permit. Fully immune vaccinated animals may leave control area under permit.
	Movement in of susceptible stock:	❖ May move under permit.
	Movement within of susceptible stock:	❖ May move under permit.
	Movement through of susceptible stock:	❖ A permit may be issued in urgent circumstances.
	Movement out of susceptible stock:	❖ May move under permit.
	Movement through of susceptible stock:	❖ A permit may be issued in urgent circumstances.
	Movement of specified products:	❖ Milk must be boiled or pasteurised.
	Movement of other animals, people, equipment:	❖ No restriction. People should be advised to see their doctor if they develop symptoms consistent with RVF.
	Vehicles:	❖ No restriction
	Sales:	❖ Can be held under permit.
	Enterprises:	❖ As for restricted area.
	Stock routes, rights of way:	❖ Movement under permit.