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OIE Regional Representative for the Middle East

RVF

OIE PROVISIONS FOR SURVEILLANCE AND CONTROL

INTRODUCTION OF THE VIRUS INTO THE MIDDLE EAST

THE OIE'S GLOBAL OBJECTIVE

- the OIE was created in 1924
to prevent animal diseases from spreading around the world

- the 4th Strategic Plan (2005 – 2010) is one step further and extends the OIE's global mandate to
"the improvement of animal health all over the world"

Objectives of the OIE

1. To ensure transparency in the global **animal disease and zoonosis situation**
2. To collect, analyse and disseminate **scientific veterinary information**
3. To provide expertise and encourage international solidarity **in the control of animal diseases**
4. Within its mandate under the WTO SPS Agreement, to safeguard world trade by publishing **health standards** for international trade in animals and animal products
5. To improve the legal framework and resources of **national Veterinary Services**
6. To provide a better guarantee of the **safety of food of animal origin** and to promote **animal welfare** through a science-based approach

RVF

- Rift Valley fever (RVF) is a peracute or acute zoonotic disease of domestic ruminants in Africa. It is caused by a single serotype of a mosquito-borne bunyavirus of the genus Phlebovirus.
- The disease occurs in climatic conditions favouring the breeding of mosquito vectors and is characterised by liver damage.
- The disease is most severe in sheep, goats and cattle, in which it produces abortions in pregnant animals and a high mortality rate in the newborn

RVF

- RVF usually occurs in epizootics in Africa, which may involve several countries in a region at one and the sametime.
- These follow the periodic cycles of exceptionally heavy rain, which may occur very rarely in semi-arid zones (25–35-year cycles), or more frequently (5–15-year cycles) in higher rainfall savannah grasslands.
- Low levelundetectable RVF activity may take place in inter-epizootic periods.
- RVF should be suspected when unusually heavy rains are followed by the occurrence of abortions together with fatal disease

OIE standards on RVF

How to regain disease free status

Standards for virus inactivation

How to define infection

To what species is disease applicable?

How to mitigate risk for trade

How to declare as disease free

How to cull animals

Standards for diagnostic tests

How to dispose of carcasses

Standards for vaccines

Guidelines for country or zonal free status

Guidelines for surveillance

OIE standards on RVF

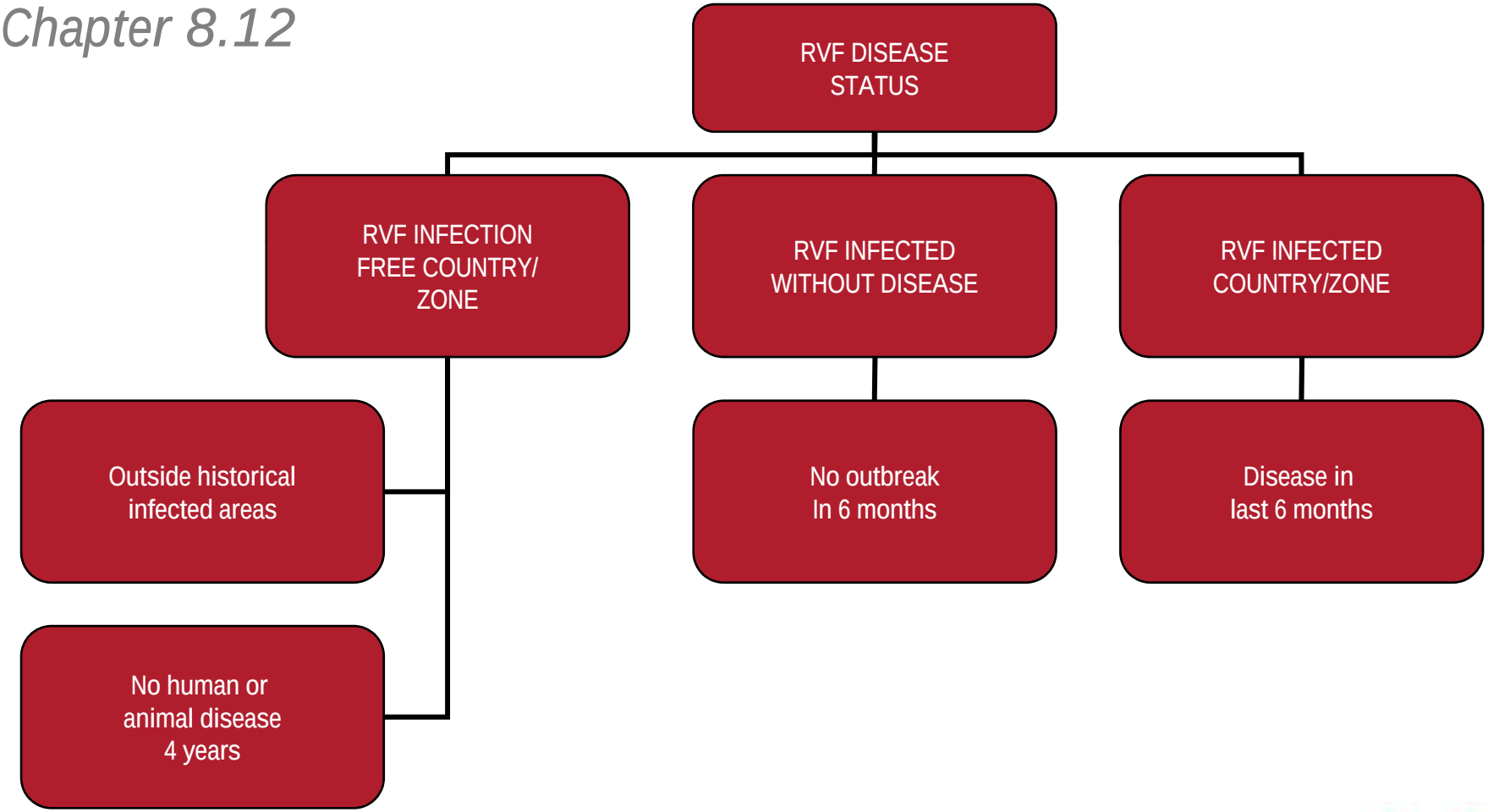
GENERAL PROVISIONS – Chapter 8.12

Epidemics of RVF may occur in infected areas after flooding. They are separated by inter-epidemic periods that may last for several decades in arid areas and, during these periods, the prevalence of *infection* in humans, animals and mosquitoes can be difficult to detect

In the absence of clinical *disease*, the RVF status of a country or *zone* within the historically infected regions of the world should be determined by a *surveillance* programme (carried out in accordance with Chapter 1.4.) focusing on mosquitoes and serology of susceptible mammals. The programme should concentrate on parts of the country or *zone* at high risk because of historical, geographic and climatic factors, ruminant and mosquito population distribution, and proximity to areas where epidemics have recently occurred

OIE standards on RVF

RVF DISEASE CLASSIFICATION IN THE TERRESTRIAL CODE – Chapter 8.12



OIE standards on RVF

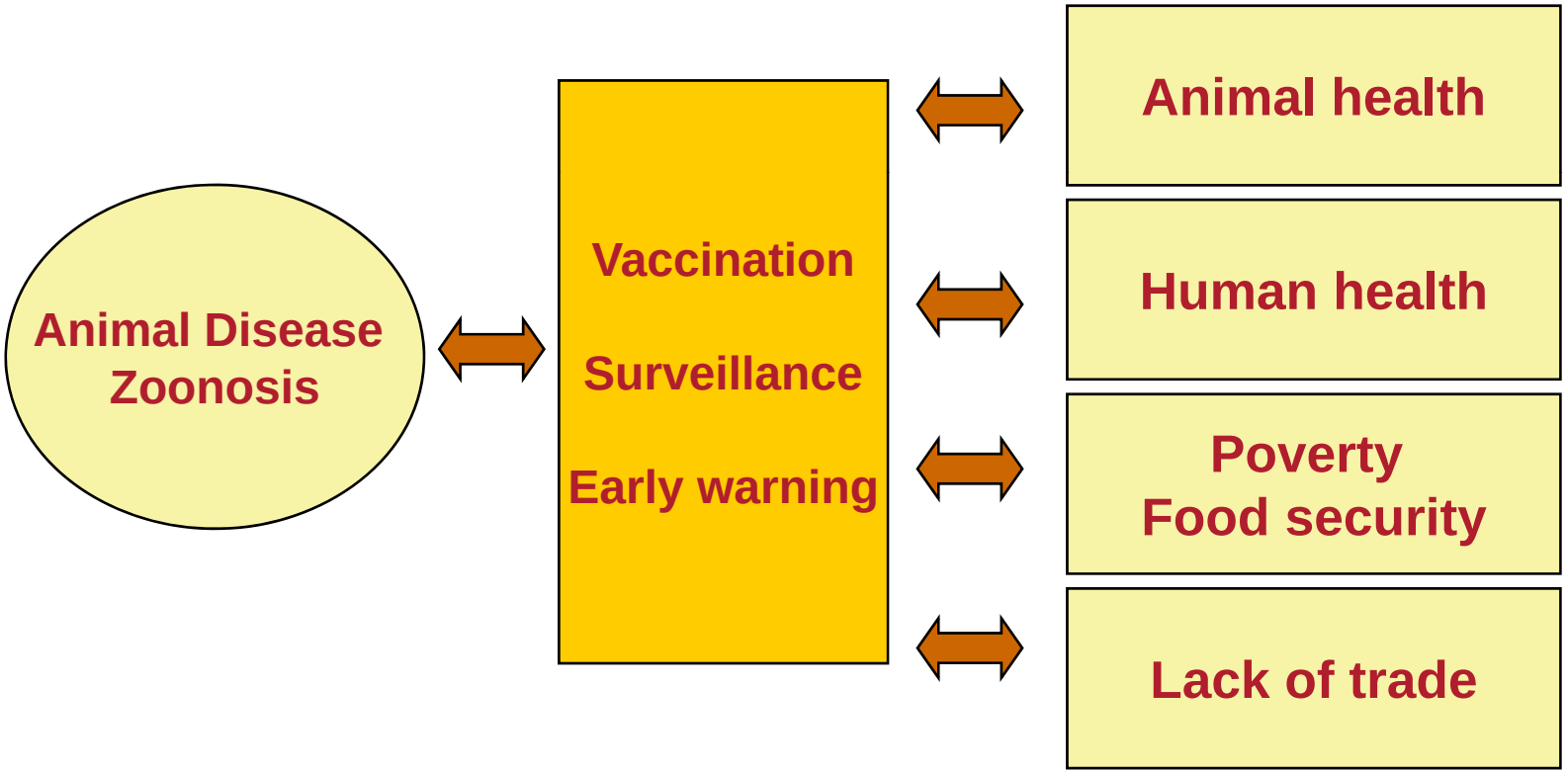
TRADE RISK CONSIDERATIONS FOR RVF

- ONLY:
  - Live animals
  - Meat and meat products of domestic and wild RUMINANTS

NOT included
in risk commodities

OIE standards on RVF

International standards acting as a buffer for RVF



OIE Diagnostic tests – Chapter 2.1.14 Manual

Identification of the agent: from blood (febrile stage), organs (liver, spleen, brain) and aborted fetuses

- Cell cultures (VERO, BHK, CER)
- Agar gel immunodiffusion
- Polymerase Chain Reaction (PCR)
- Histopathology

Serological Tests:

- Virus neutralization (VN): prescribed test for international trade; for recording the earliest response; only with live virus (not recommended in free zones and without biosecurity facilities)
- ELISA: good sensitivity and detection of recent infection.
- Haemagglutination Inhibition (HI): vaccination antibodies titers are much lower than those following natural infections.

OIE Vaccines – Chapter 2.1.14 Manual

- Live modified attenuated vaccine (Smithbyrn strain):
  - for control of RVF in non-pregnant animals (teratogenic and abortigenic) and in endemic areas and during outbreaks
  - Animals immunised with these vaccines are solidly immune 21 days after vaccination, and do not pose a risk to importing countries
  - Live vaccines are considered to induce lifelong immunity against clinical disease.

- Inactivated vaccines (from virulent field strains):
  - for use in pregnant animals and in RVF free zones. They should be carefully safety tested to ensure no residual live virus
  - When using inactivated vaccine, a booster dose should be given 3-6 months after the initial one, and thereafter vaccination should be repeated yearly

OIE Surveillance standards

General conditions for RVF surveillance

- **A surveillance system should be in place under the responsibility of the veterinary administration**
  - **Detecting and investigating an outbreak**
  - **Procedure for rapid collection and transfer of samples from suspect cases**
  - **Recording, managing and analyzing the diagnostic and surveillance data**

OIE Surveillance standards

The surveillance program should include:

- An early warning system throughout the whole production, marketing and processing chain.
- Immediate clinical and laboratory investigation of all suspected cases
- Regular and frequent inspections and testing of risk groups

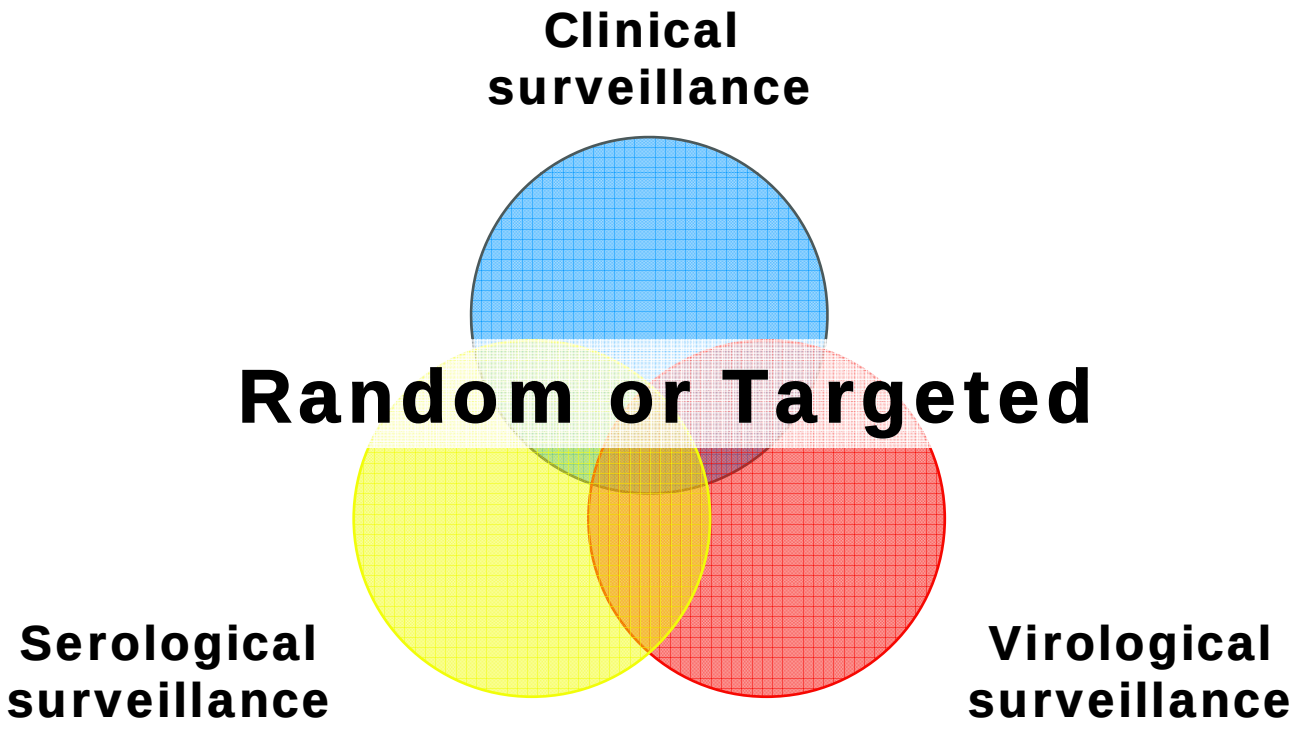
OIE Surveillance standards

Surveillance strategies

- **Should be targeted at all susceptible species in the country zone or compartment and include vector surveillance**
- **Should be active and passive**
- **Disease could be present without initial clinical manifestation in animals**
- **Look for trigger signs/warnings: abortions in animals, haemorrhagic syndromes, haemorrhagic disease/deaths in humans associated with animals**

OIE Surveillance standards

Active Surveillance strategies



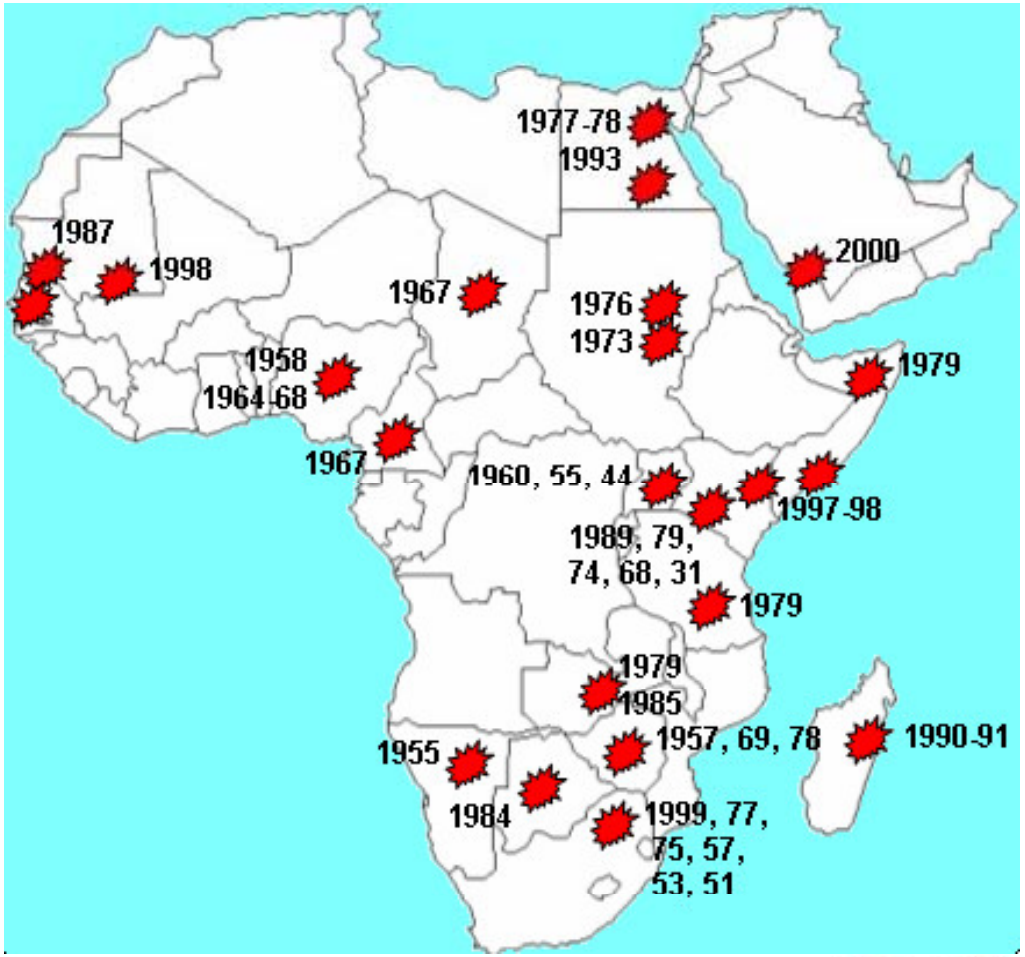
OIE Surveillance standards

Surveillance strategies

- Random surveillance: statistically based surveys
- Targeted surveillance: based on the increased likelihood of infection in particular localities or species and coincide with external risk factors
- The strategy chosen should be adequate to detect infection

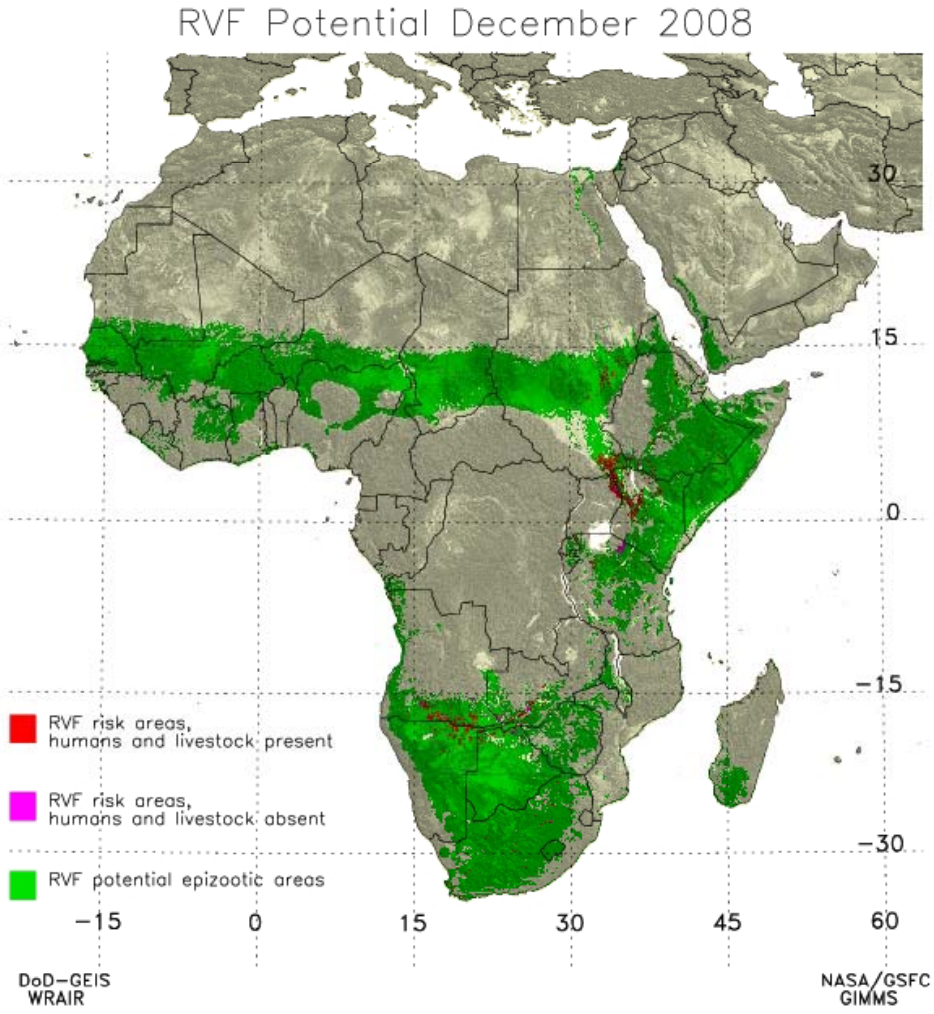
Location of RVF epidemics

since the beginning of the 20th Century

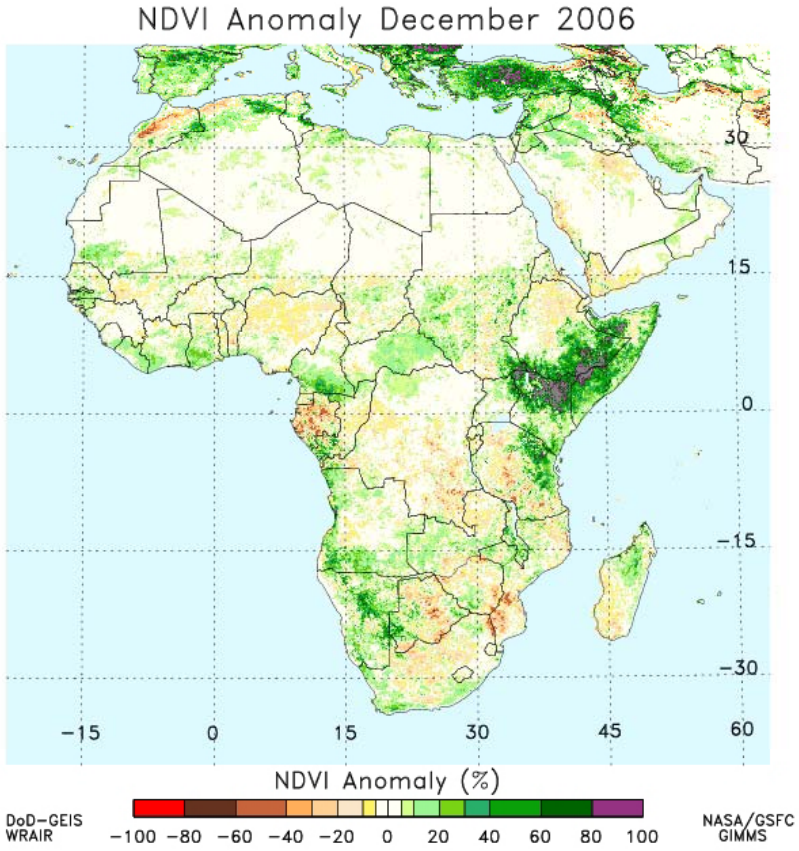


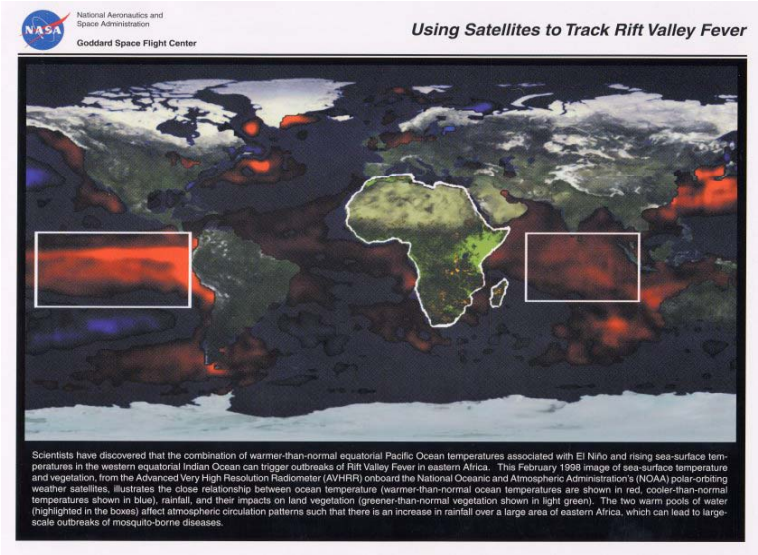
From: Clements *et al.* 2006
International Journal of Health Geographics

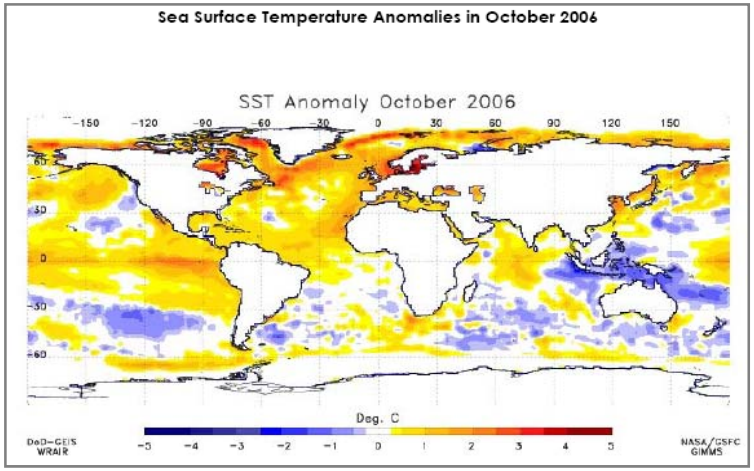
RVF occurrence can be predicted



RVF occurrence can be predicted

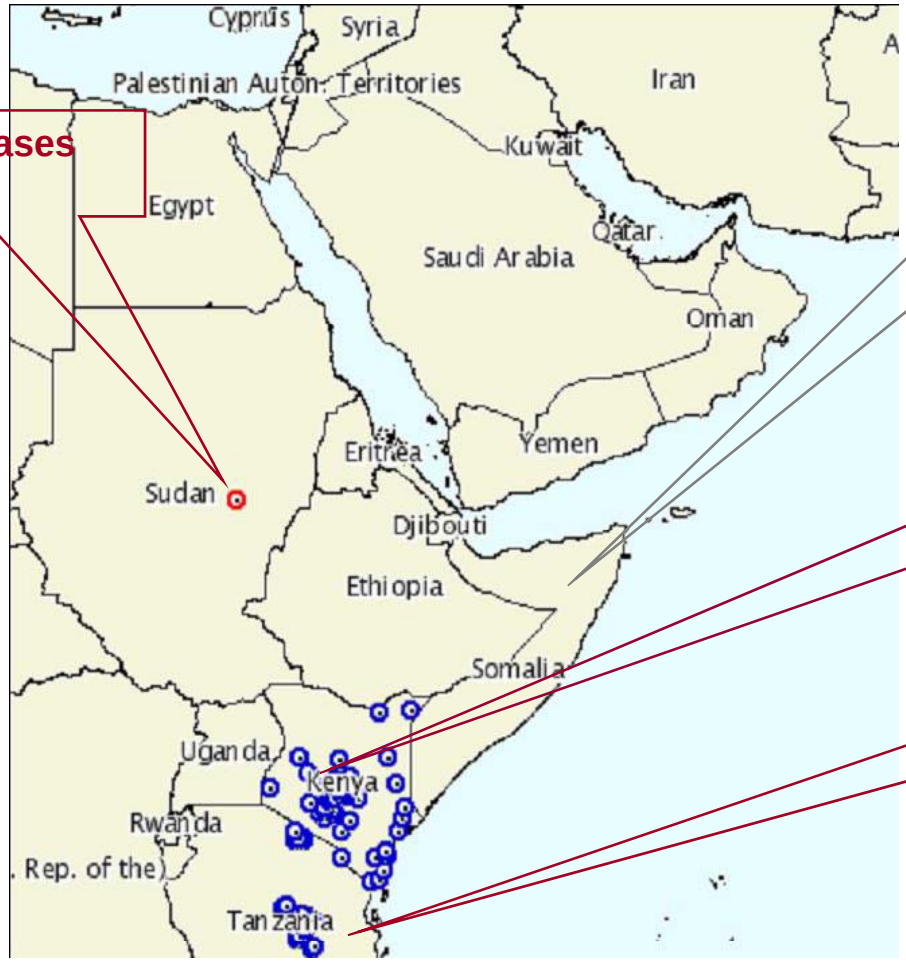






Using several relevant tools – forecasting models

Since 2006 – Re-occurence in East and South Africa



698 animal cases
222 deaths

114 human cases
51 deaths

38 outbreaks
4 445 animal cases 235 deaths
684 human cases – 155 deaths

19 outbreaks
32 138 animal cases 4 139 deaths

Situation in 2006 - 2007

Since 2006 – Re-occurence in East and South Africa

2 outbreaks 16 cases (illegal imports ?)

13 outbreaks
349 animal cases
103 deaths

18 outbreaks
24 animal cases 18 deaths
418 human cases 17 deaths

2 outbreaks
31 animal cases 10 deaths

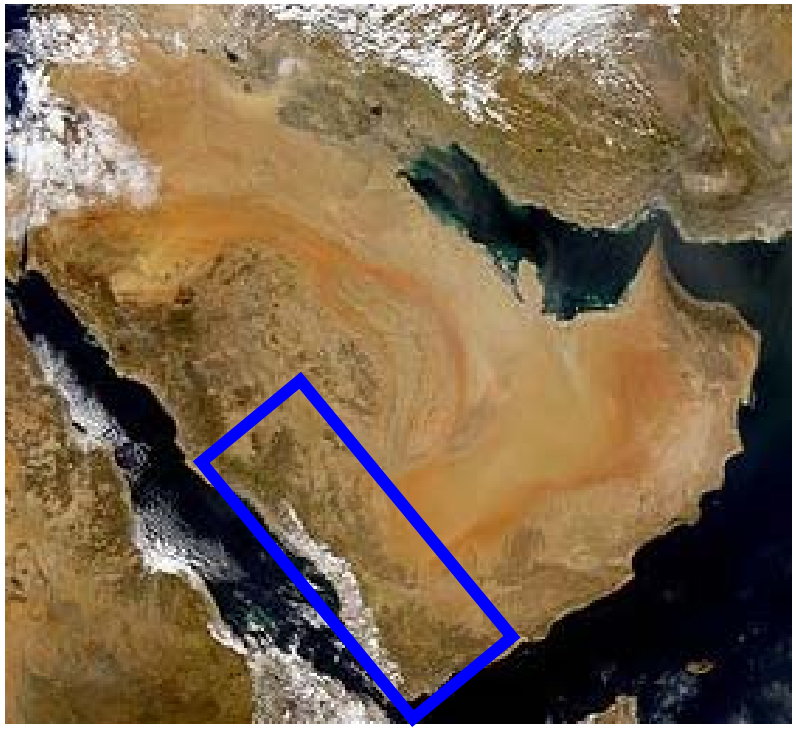
Situation in 2008

Introduction into new areas: the Middle East

- Rift Valley Fever was restricted to sub-Saharan Africa until it was detected in Egypt, 1977
- Since then, there have been several recurrences in Egypt causing explosive epidemics (1977-1978, 1986-1987), resulting in hundreds of human deaths and heavy losses in the animal industry
- The introduction of RVF into Yemen and Saudi Arabia in 2000, its first appearance outside the African continent, was of particular concern related to its impacts on public health, causing human suffering and mortalities (around 200 people died)

Introduction into new areas: the Middle East

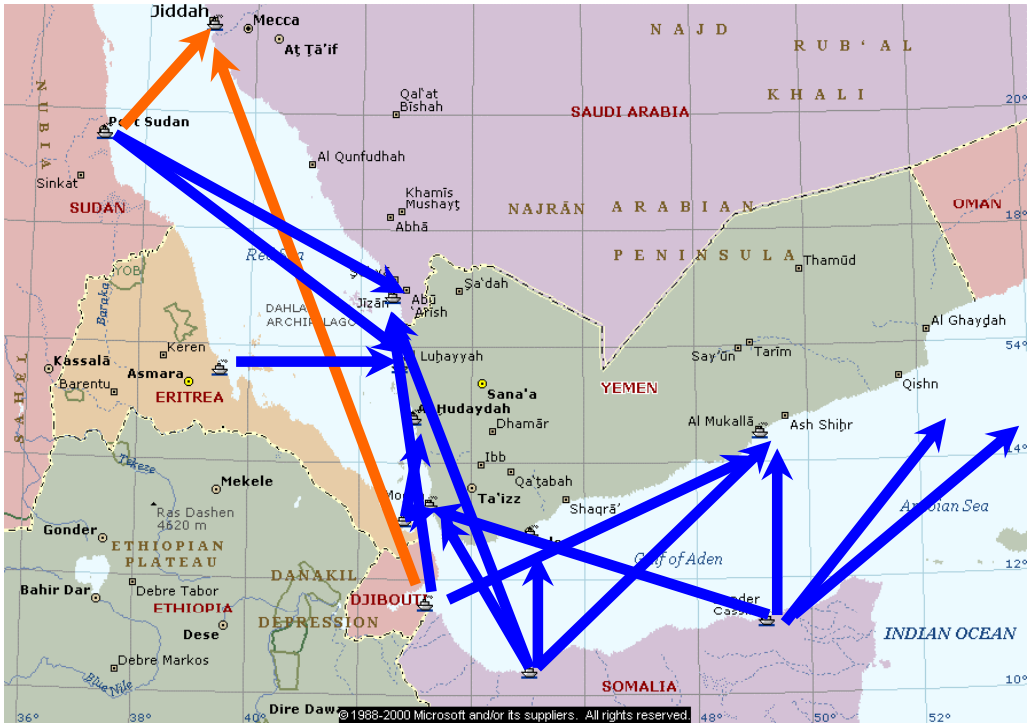
- The Tihama/Jizan regions of Yemen and Saudi Arabia were principally involved
- Their ecological characteristics are identical with those across the Red Sea in Africa. The Red Sea constitutes the floor of the Great Rift Valley before its separation from the African continent.
- Those regions are also the main destination of the animal trade from the Horn of Africa to the Middle East



Introduction into new areas: the Middle East

- About 15 millions cattle, goat, sheep are imported each year from the Horn of Africa to the Gulf Peninsula
- Most of them for the holly periods (Hajj – Eid)

Livestock Trade – Horn of Africa



Introduction into new areas: the Middle East

- The first component is the movement of animals from the Horn of Africa and Sudan directly to the ports of Saudi Arabia (ie Jeddah).
- This involves transport by road from regional markets in Somalia, Ethiopia or north Kenya, mainly to the ports of Djibouti ,Berbera, Bossasso and Port Sudan, and from these by boat to Saudi Arabia
- Since 2006, there are pre-export quarantine stations to manage the risk of animal disease introduction through the trade

Introduction into new areas: the Middle East

- The second component of animal imports encompasses the ‘trickle trade’, which involves the movement of animals in a northerly direction from Yemen into Saudi Arabia
- Many of the sheep and goats traded in this way originate in the Horn of Africa and have been transported to the Arabian Peninsula by way of the Yemeni ports of Aden, Al Mukha and Al Hodeidah
- However, a significant number are from within Yemen itself; they are grazed and traded in a northerly direction to the big markets on the border with Saudi Arabia. This trade has probably continued unaltered for centuries.
- These animals could be exposed to RVF during passage through the Tihama of Yemen and Saudi Arabia if the climatic conditions are favorable for RVF virus activity

Introduction into new areas: the Middle East

- Outbreaks of RVF in 2000 - 2001 linked to animal movement :
  - From Horn of Africa
  - Within the Tihama region
- No more outbreaks since then in the region despite ecological environment favorable for the maintain of the virus

Introduction into new areas: the Middle East

- RVF has the potential to quickly spread in the Horn of Africa (Somalia, Ethiopia..)
- As an important traditional livestock trade exists between countries in the Horn of Africa and countries in the Middle East, a major challenge is to manage the risk of spreading RVF with such livestock shipments
- Importing countries must be given adequate safety assurances with respect to RVF, while the livestock trade, vital to the livelihood of agropastoralists in both regions, should be permanently maintained on a safe basis.

The Way Forward

How to minimize the threat of RVF virus activity:

- National Level
- Regional Level

How to minimize the Threat of RVF – National Level

- ✓ **Good Governance of VS:** legislation, policies and resources, in compliance with OIE international standards on quality of national animal health systems democratically adopted by 172 Member Countries
- ✓ Surveillance mechanism of the entire national territory under governmental supervision
- ✓ Relevant contingency plan – vaccination strategy
- ✓ Early detection
  - Awareness
  - High quality of public and private component of Veterinary Services

How to minimize the Threat of RVF – National Level

- ✓ Rapid and transparent notification
  - Appropriate national chain of command
- ✓ Rapid response
  - rapid confirmation of suspects
  - confinement and humane stamping out
  - use of vaccination if appropriate
  - Compensation Mechanism
- ✓ Respect OIE Standards for RVF

How to minimize the Threat of RVF – National Level

✓ Adopt the Model of Health Certificate developped by the OIE Regional Representation for the Middle East for the safe trade of ruminants:

- To secure the trade from the Horn of Africa
- In compliance with the OIE Terrestrial Code
- According to OIE inter - regional meetings on RVF (Cairo 2004 and 2007)
- Adopted by OIE Regional Commissions for Africa and the Middle East

How to minimize the Threat of RVF – National Level

- ✓ Established in both english and arabic language, understandable by all importing and exporting countries
- ✓ Available on the website of the OIE Regional Representation

HEALTH CERTIFICATE FOR EXPORT INTO THE TERRITORIES OF THE GULF COOPERATION COUNCIL COUNTRIES OF CATTLE FOR SLAUGHTER

شهادة صحية لتصدير أبقار الذبح إلى دول مجلس التعاون الخليجي

Name and address of consignor اسم وعنوان المرسل	EXPORTING COUNTRY MINISTRY OF .....وزارة
Name and address of consignee اسم وعنوان المرسل إليه	Check point in the country of origin. المركز الحدودي في بلد المنشأ
	Place of loading محطة التحميل
	Country and place of destination بلد وعنوان المرسل إليه

Identification of means of transportation

مواصفات وسيلة النقل

Total Number العدد الإجمالي	Identification number(s) رقم التعريف	Species النوع	Breed العرق	Sex الجنس	Age العمر

Additional information (if required)

معلومات أخرى

I the undersigned, official veterinarian, after considering all the supporting documents related to the sanitary information included in this certificate, certify that the animals described above have been examined this day, and meet all the requirements mentioned in the health attestation attached to this document. أنا الموقع أدناه، الطبيب البيطري المسؤول، وبعد الاطلاع على جميع الوثائق الثبوتية للمعلومات الواردة في هذه الشهادة، أفيد بأنه أجري الفحص على الحيوانات المعرف عنها أعلاه، وتبين أنها مستوفية جميع الشروط الصحية البيطرية المطلوبة. Place ----------المكان Date ----------التاريخ	Stamp and signature of the veterinary inspector: ختم وتوقيع الطبيب المسؤول:

Each separated page must be signed and stamped.

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How to minimize the Threat of RVF – Regional and International level

✓ Develop regional and international strategies for prevention and control

- Coordination between all actors: International Organizations, national VS, ONGs…
- Establishment of adapted regional predicting model with scientific support
- Increasing the number of Reference Laboratories: OIE Twinning – Egypt ?
- enhancing knowledge of professionals and their capability to respond to a RVF crisis

Thank you for your attention

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Thank you for your attention

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