GF-TADs Africa

GLOBAL FRAMEWORK FOR THE
PROGRESSIVE CONTROL OF
TRANSBOUNDARY ANIMAL DISEASES

Food and Agriculture
Organization of the
United Nations

World Organisation
for Animal Health
Founded as OIE

African
Union

RSC 12

Ahead of the Curve:

Anticipating RVF Outbreaks Through Forecasting – A Strategy for Early Warning, Timely Response and Mitigation in the Africa Region

- Kivaria F.M., Pittiglio C., Bebay C. (March 2025)
- Food and Agriculture Organisation of the United Nations

Background

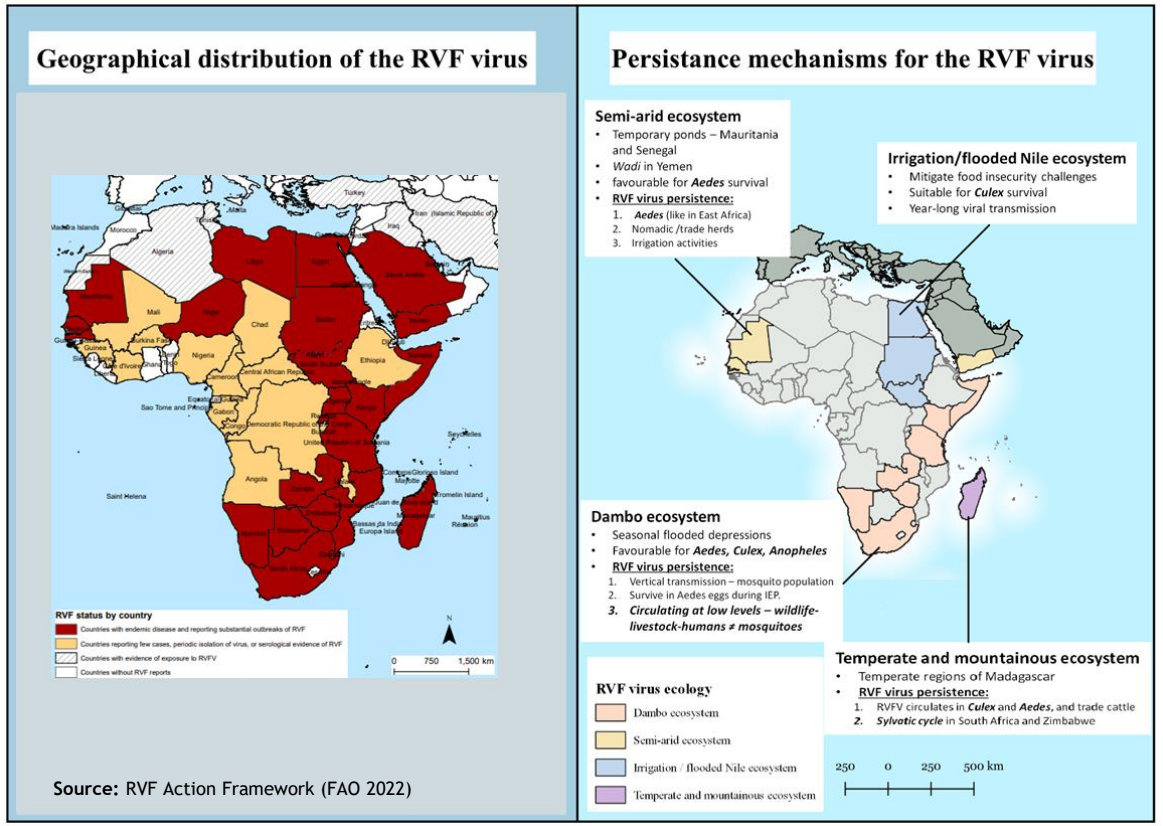
Disease epidemiology

- Endemic in Africa with
- Over 100 years since its first description – persisting – expanding
- Complex-and-Not well understood

Disease impact

- Disrupts rural economies
- Trade embargos
- Health systems burden during outbreaks

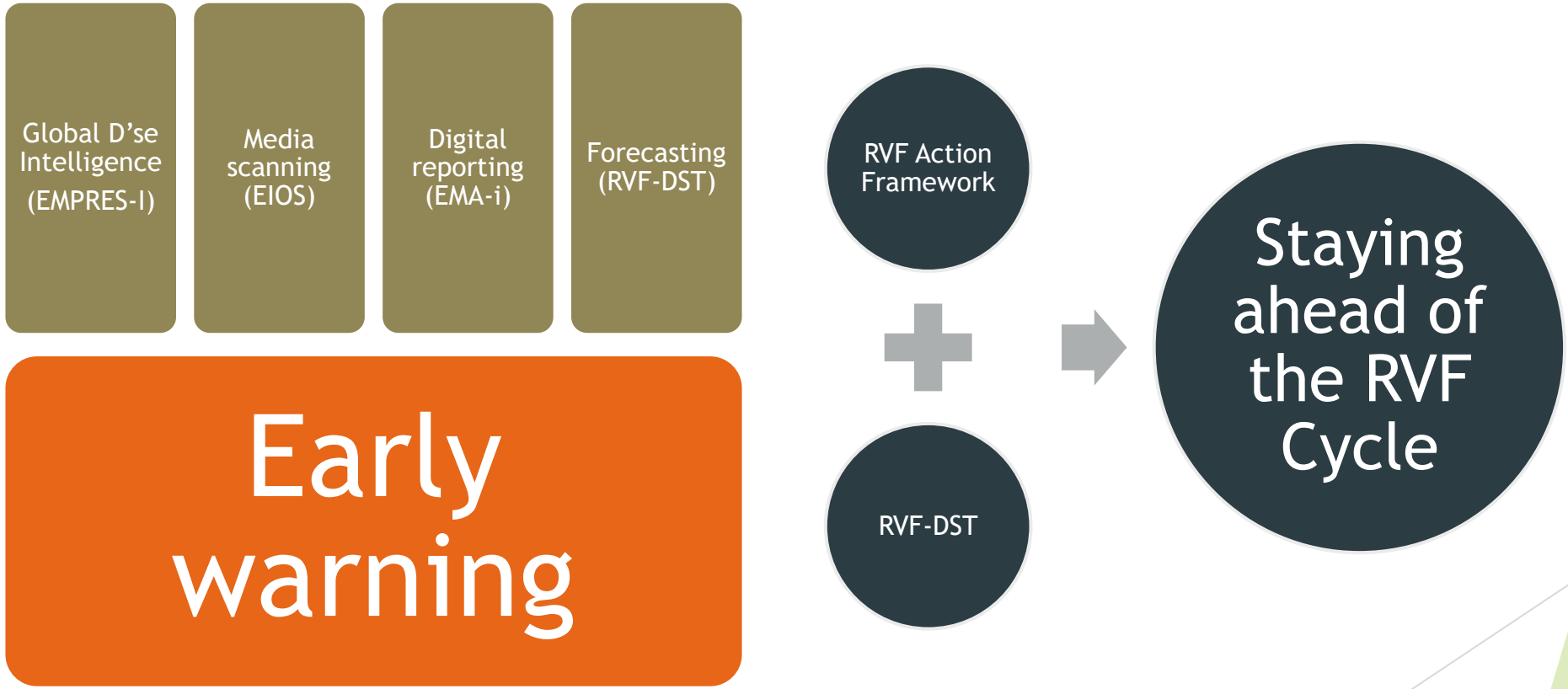
Geographical distribution and persistence mechanisms for RVF the Virus in Africa



Source: RVF Action Framework (FAO 2022)

More information on d'se impacts

FAO's Approach to Stay Ahead



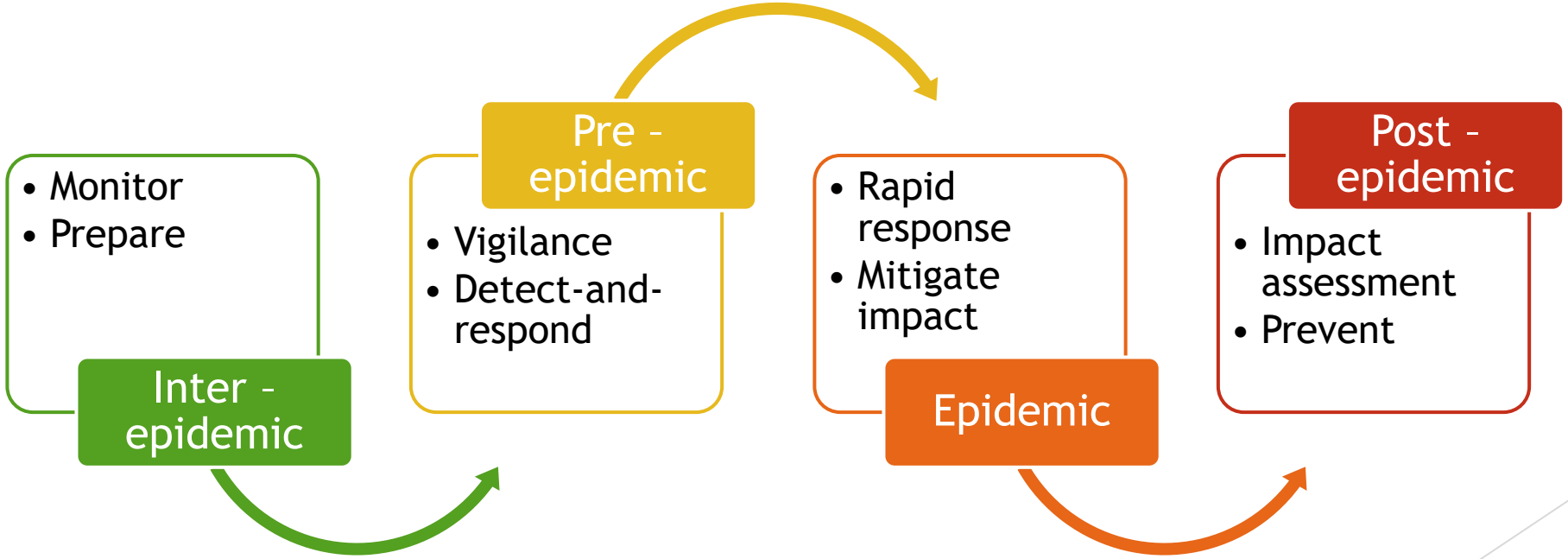
Early warning and disease intelligence

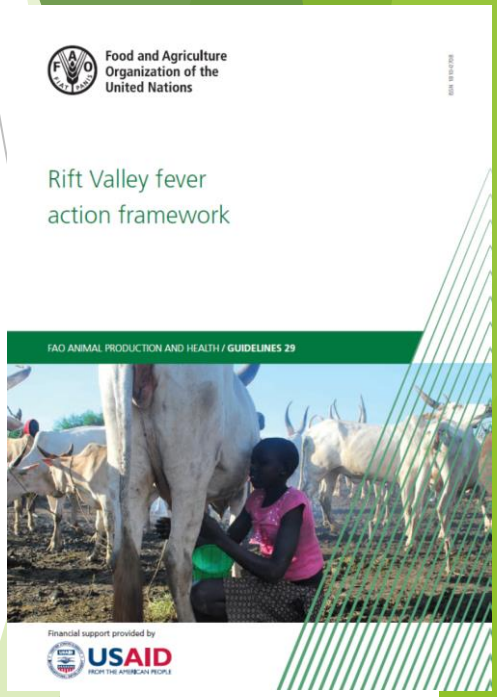
FAO's Early warning, Early action – A Regional Perspective

RSC 12

FAO's RVF Action Framework

Structured approach to managing RVF risk

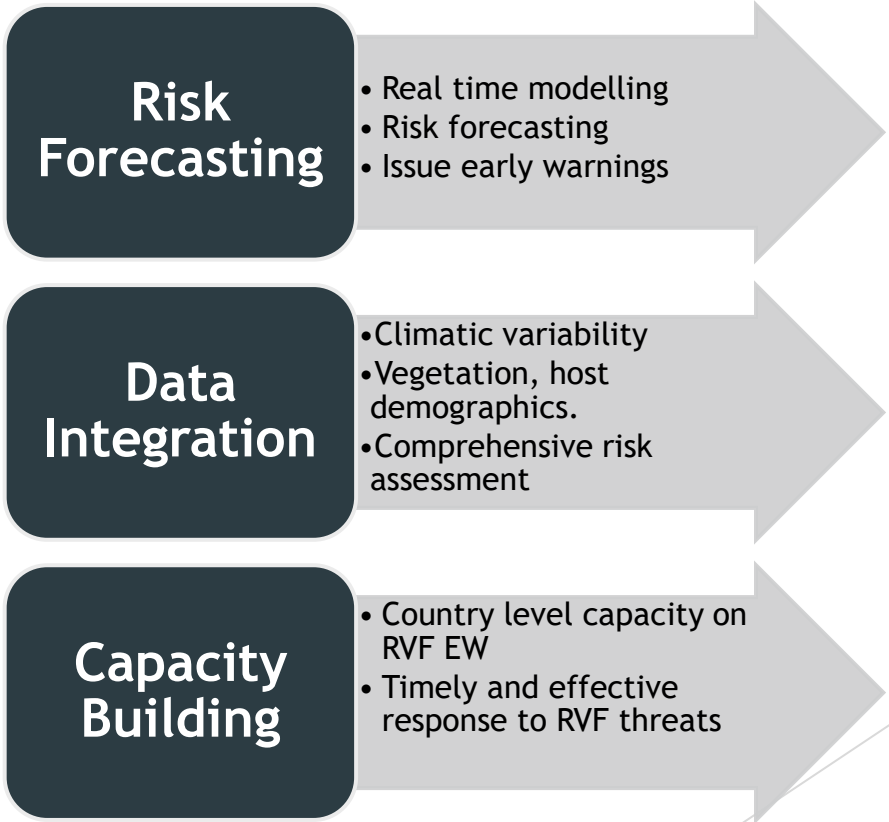




More on the Action Framework

RVF Early Warning Decision Support Tool (RVF-DST)

- Web-based tool – integrates
  - Real-time risk maps
  - Historical and current RVF events
  - Local expert knowledge



Read more on the RVF-DST

Combined efforts

- By integrating the RVF Action Framework and RVF-DST, FAO helps African countries to …

Stay informed

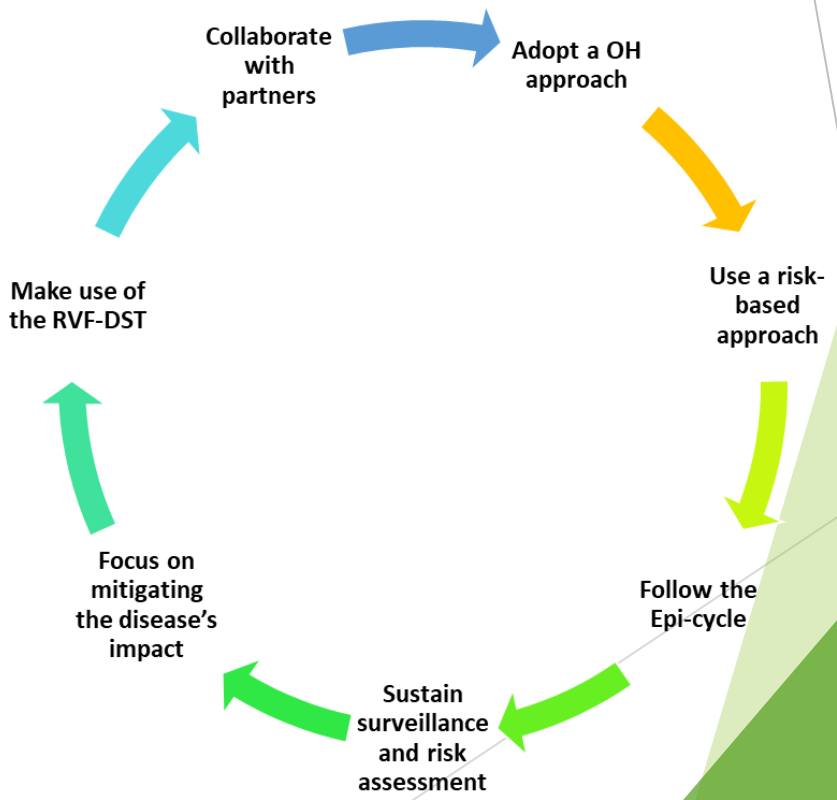
- Up-to-date information on RVF risks and outbreaks

Prepare and Respond

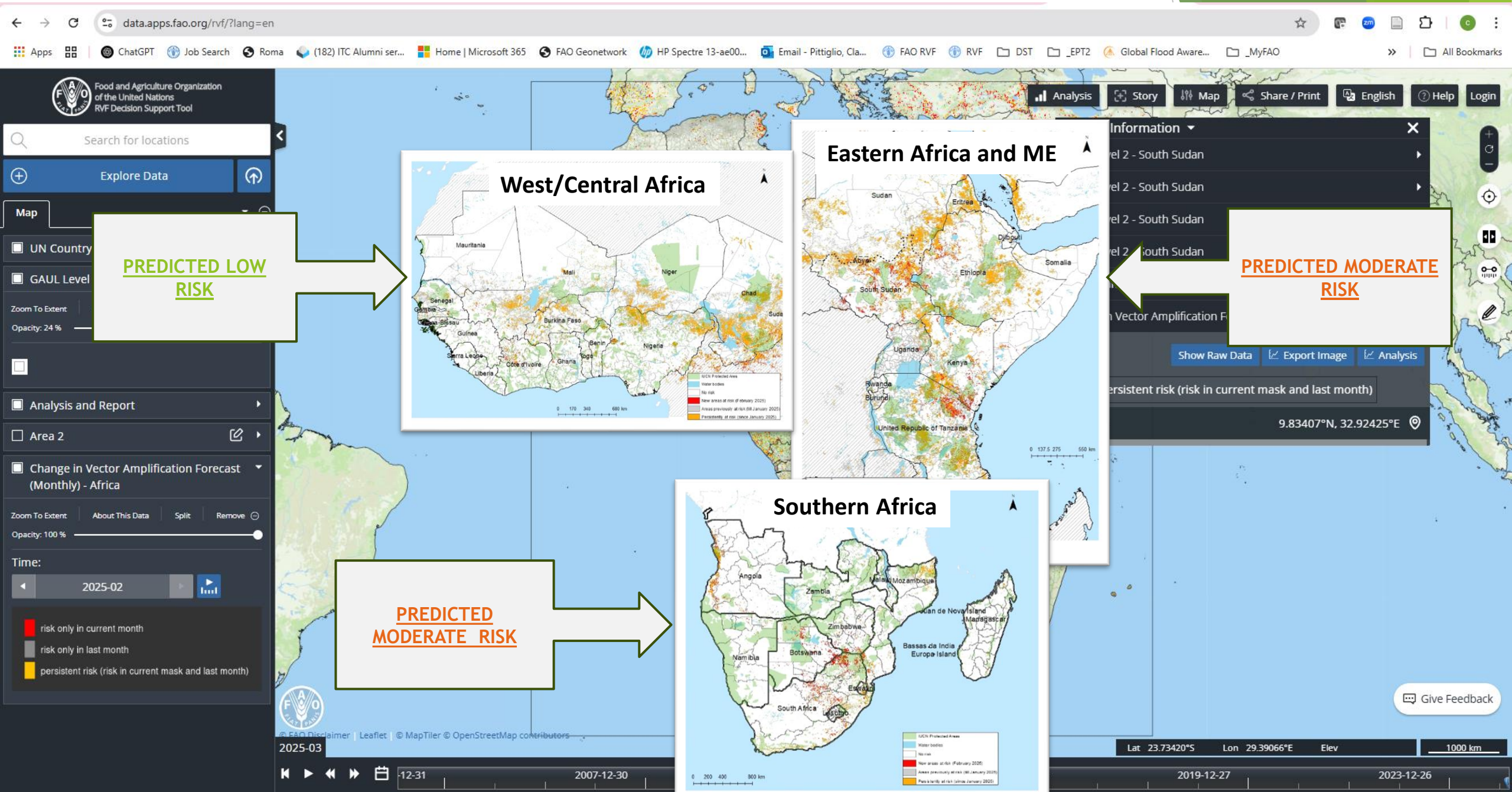
- Targeted surveillance
- EW-and-RP

Mitigate Impact

- PH-livelihoods-trade
- Thru coordinated efforts



Forecasted suitability for RVF vector amplification: February- April 2025



In practice: FAO-IGAD Joint Alerts - 2020 - 2024

- **Overview:** The FAO, in partnership with IGAD, issues joint alerts to countries in East Africa about the increased risk of RVF.
- **Purpose: -** To enhance preparedness and response strategies,
- **Impact:**
  - ❖ Instrumental in predicting and preventing several outbreaks by guiding timely interventions and preventive measures.
  - ❖ Approximately 1.2 million animals have been vaccinated across East Africa owing to the joint alerts.
  - ❖ Improved disease reporting-and-or diagnostic capacity

Food and Agriculture Organization of the United Nations

IGAD

alert

FAO AND IGAD URGE EASTERN AFRICA COUNTRIES TO STRENGTHEN RIFT VALLEY FEVER PREPAREDNESS

19 December 2024

Key facts:

1. RVF is an acute, vector-borne, viral and zoonotic disease that has severe impacts on livelihoods, national and international markets and human health.
2. The disease has been observed in sheep, goats, cattle, buffaloes, camels and humans and is spread primarily by mosquitoes and the movement of animals.
3. Heavy rains and prolonged flooding increase habitat suitability for vector populations, determining massive hatching of RVF competent mosquitoes (e.g. *Aedes* and *Culex*), thus influencing the risk of RVF emergence, transmission and spread.
4. The dynamic prediction model calibrated by the Food and Agriculture Organization of the United Nations (FAO) builds upon the work by Anyamba *et al.*, (2009; 2010), which utilizes vegetation and rainfall anomalies as a proxy for ecological dynamics to map areas at potential risk of RVF in Eastern Africa.
5. The FAO RVF Early Warning panel of experts verifies the risk areas with the experts on the ground and assesses if conditions warrant an RVF alert (FAO 2019, 2021).

Rift Valley fever (RVF) is an endemic vector-borne zoonotic disease in East Africa that poses risks to human and animal health and livestock production. Its complex epidemiology makes monitoring and timely control difficult. To improve understanding and disease management, FAO has developed a web-based RVF Early Warning Decision Support Tool (RVF DST) that uses habitat suitability modeling and environmental factors for real-time forecasting. In collaboration with the Intergovernmental Authority on Development (IGAD), FAO alerts to at-risk countries, advising on increased risk and necessary mitigation measures.

From September to November 2024, above-average rainfall affected parts of the Sudan, South Sudan, Ethiopia, Uganda, western and central Kenya, northern of the United Republic of Tanzania, and parts of Rwanda and Burundi. Recently, heavy rains in the northern region caused flooding in eastern Sudan, northern South Sudan, eastern Ethiopia, Eritrea, and Djibouti. The rainfall forecast for December 2024 to March 2025 predicts wetter-than-normal conditions in the central and southern part of the region, especially in the United Republic of Tanzania, southwestern Kenya, parts of Uganda, and Rwanda. These previous, ongoing and forecasted rains are creating favorable habitat conditions for the RVF vector amplification, resulting in persistent suitable hotspots for the RVF emergence in the region (Figure 1), and particularly in southern **Sudan**, eastern **South Sudan**, parts of **Eritrea**, **Ethiopia**, and **Djibouti**, western **Kenya**, much of **United Republic of Tanzania**, and southern **Somalia.**

Therefore, FAO and IGAD are advising the countries to increase awareness,

- **Promoting OH Approach:** The alerts have significantly strengthened the OH approach in East Africa by promoting integrated outbreak investigations, fostering cross-sectoral and cross-border collaboration, enhancing surveillance and monitoring systems, supporting capacity-building initiatives, and engaging communities in comprehensively addressing RVF risks and outbreaks.

Case Studies and Lessons Learned

- **Kenya** has been using the RVF-DST for risk-based sero-surveillance-and-preemptive vaccination.
- **Impact :** The tool has enabled Kenyan NVS to identify high-risk areas and issue early warnings, consequently, over 52,000 animals were vaccinated during the 2022 RVF outbreak.
- **Quote:** "The RVF-DST tool has revolutionized our approach to managing RVF risks, allowing us to act proactively rather than reactively." - Kenyan Veterinary Officer.
- **Rwanda -** Proactive vaccinations (May 2024-alert)
- **Impact:** As of September 2024, Rwanda has vaccinated 98,410 out of 132,999
- **Quote:** "The timely alerts and subsequent vaccination efforts have been a game-changer for us, ensuring the health and safety of our communities." - Rwandan Veterinary Officer.

Case Studies and Lessons Learned

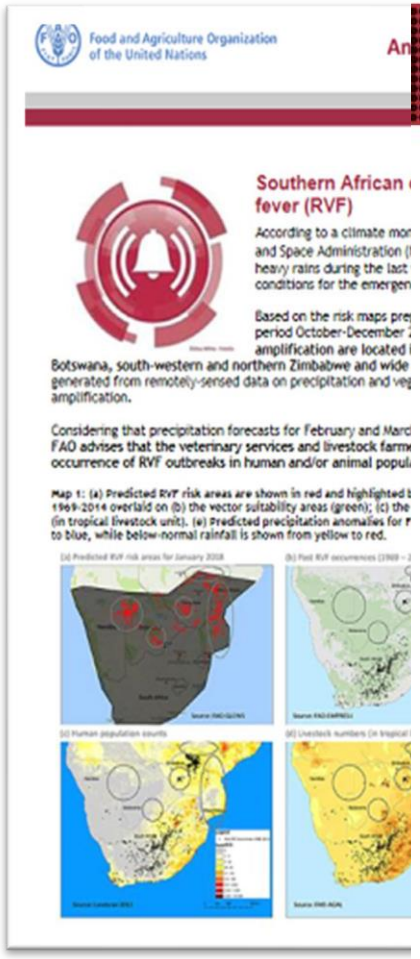
- **Tanzania: -** May 2024-alert: conducted risk-based sero-surveillance in the identified RVF high-risk areas.
- **Impact:**
  - 15% of the samples – IgM positive
  - 85% of the samples – IgG positive
  - “appears” to be expanding
- **Quote:** "With the RVF-DST tool, we can now predict and prevent RVF outbreaks, ensuring the safety of our livestock and people." - Tanzanian Health Official.

- **South Sudan**: has faced recurrent RVF outbreaks, impacting both animal and human populations.
- **Impact:** The country integrates risk maps generated by the RVF-DST with local knowledge of the disease to enhance continuous monitoring and effectively manage RVF risks at the communities
- **Quote:** "Enhanced surveillance and timely interventions have been crucial in managing RVF risks and safeguarding our communities." - South Sudanese Health Official.

Case Studies and Lessons Learned

Joint FAO-NASA R

r, May, July 2020)


Food and Agriculture Organization of the United Nations

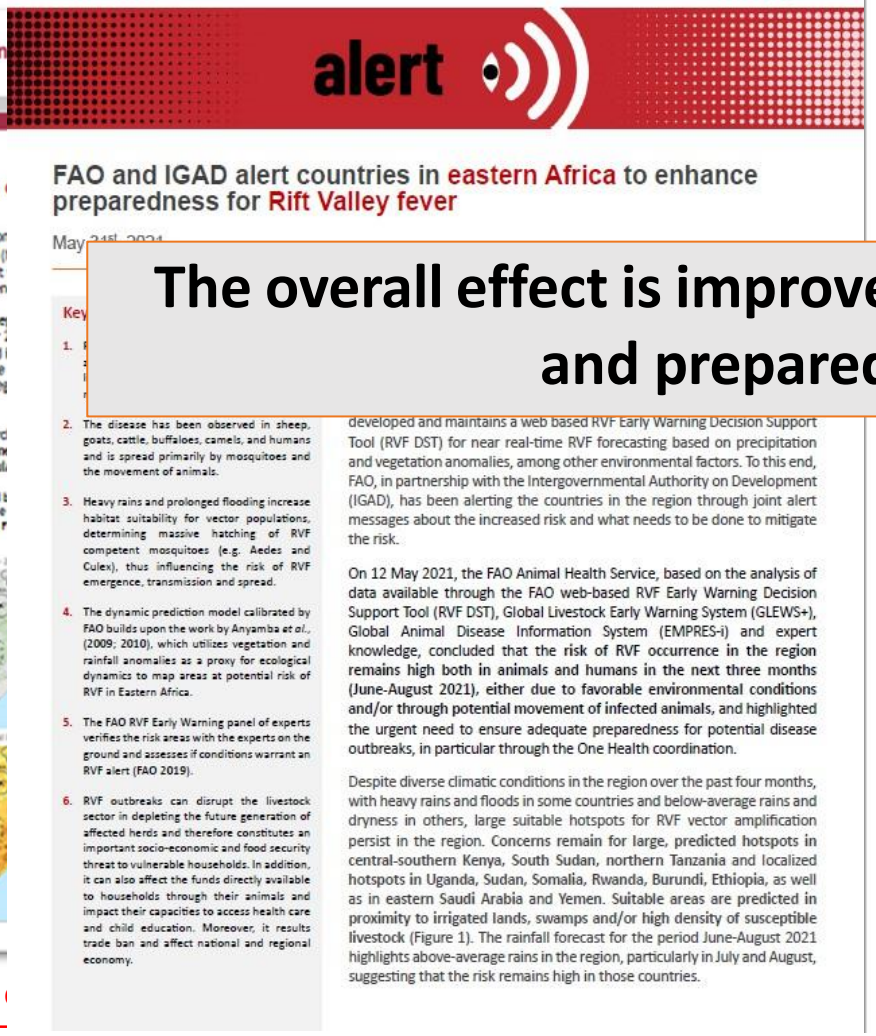
Southern African
fever (RVF)

According to a climate mor
and Space Administration (
heavy rains during the last
conditions for the emergen

Based on the risk maps pre
period October-December
amplification are located
Botswana, south-western and northern Zimbabwe and wide
generated from remotely-sensed data on precipitation and veg
amplification.

Considering that precipitation forecasts for February and Marc
FAO advises that the veterinary services and livestock farm
occurrence of RVF outbreaks in human and/or animal popul

Map 1: (a) Predicted RVF risk areas are shown in red and highlighted
1969-2014 overlaid on (b) the vector suitability areas (green); (c) the
(in tropical livestock unit). (e) Predicted precipitation anomalies for
to blue, while below-normal rainfall is shown from yellow to red.


Food and Agriculture Organization of the United Nations

alert

FAO and IGAD alert countries in eastern Africa to enhance preparedness for Rift Valley fever

May 24th, 2021

Key

1. R

2. The disease has been observed in sheep, goats, cattle, buffaloes, camels, and humans and is spread primarily by mosquitoes and the movement of animals.

3. Heavy rains and prolonged flooding increase habitat suitability for vector populations, determining massive hatching of RVF competent mosquitoes (e.g. Aedes and Culex), thus influencing the risk of RVF emergence, transmission and spread.

4. The dynamic prediction model calibrated by FAO builds upon the work by Anyamba *et al.*, (2009; 2010), which utilizes vegetation and rainfall anomalies as a proxy for ecological dynamics to map areas at potential risk of RVF in Eastern Africa.

5. The FAO RVF Early Warning panel of experts verifies the risk areas with the experts on the ground and assesses if conditions warrant an RVF alert (FAO 2019).

6. RVF outbreaks can disrupt the livestock sector in depleting the future generation of affected herds and therefore constitutes an important socio-economic and food security threat to vulnerable households. In addition, it can also affect the funds directly available to households through their animals and impact their capacities to access health care and child education. Moreover, it results trade ban and affect national and regional economy.

developed and maintains a web based RVF Early Warning Decision Support Tool (RVF DST) for near real-time RVF forecasting based on precipitation and vegetation anomalies, among other environmental factors. To this end, FAO, in partnership with the Intergovernmental Authority on Development (IGAD), has been alerting the countries in the region through joint alert messages about the increased risk and what needs to be done to mitigate the risk.

On 12 May 2021, the FAO Animal Health Service, based on the analysis of data available through the FAO web-based RVF Early Warning Decision Support Tool (RVF DST), Global Livestock Early Warning System (GLEWS+), Global Animal Disease Information System (EMPRES-i) and expert knowledge, concluded that the **risk of RVF occurrence in the region remains high both in animals and humans in the next three months (June-August 2021), either due to favorable environmental conditions and/or through potential movement of infected animals**, and highlighted the urgent need to ensure adequate preparedness for potential disease outbreaks, in particular through the One Health coordination.

Despite diverse climatic conditions in the region over the past four months, with heavy rains and floods in some countries and below-average rains and dryness in others, large suitable hotspots for RVF vector amplification persist in the region. Concerns remain for large, predicted hotspots in central-southern Kenya, South Sudan, northern Tanzania and localized hotspots in Uganda, Sudan, Somalia, Rwanda, Burundi, Ethiopia, as well as in eastern Saudi Arabia and Yemen. Suitable areas are predicted in proximity to irrigated lands, swamps and/or high density of susceptible livestock (Figure 1). The rainfall forecast for the period June-August 2021 highlights above-average rains in the region, particularly in July and August, suggesting that the risk remains high in those countries.

The overall effect is improved state of vigilance and preparedness

Useful Links

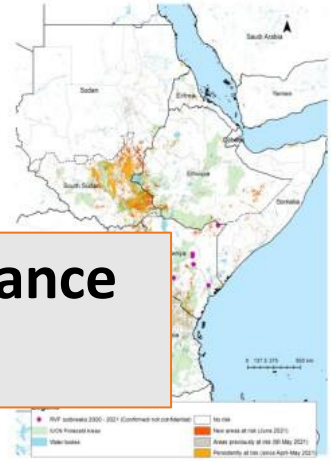
- Rift Valley fever surveillance (FAO Manual 2018) www.fao.org/3/i8475EN/i8475en.pdf
- Recognizing Rift Valley fever (FAO Manual 2003) www.fao.org/3/y4611e/y4611e00.htm
- Preparation of Rift Valley fever contingency plans (FAO Manual 2002) www.fao.org/3/Y4140E/Y4140E00.htm
- Decision-support tool for prevention and control of Rift Valley fever epizootics in the Greater Horn of Africa. (ILRI and FAO. 2009) Version I. ILRI Manuals

955-959. www.pnas.org/content/pnas/106/3/955.full.pdf

Useful Information

- EuFMD, in collaboration with EMPRES-Animal Health and FAO Regional Offices, launched a new online, open-access 'mobile first' course on efficient recognition, surveillance, prevention and control of Rift Valley Fever (RVF). The course will soon be available in a "just in time" basis in the field, and also in a downloadable version for offline use as needed. For more information, please contact eufmd-training@fao.org.

Figure 1. Confirmed RVF outbreaks (2020 – 2021) and forecasted risk of RVF vector amplification for June 2021



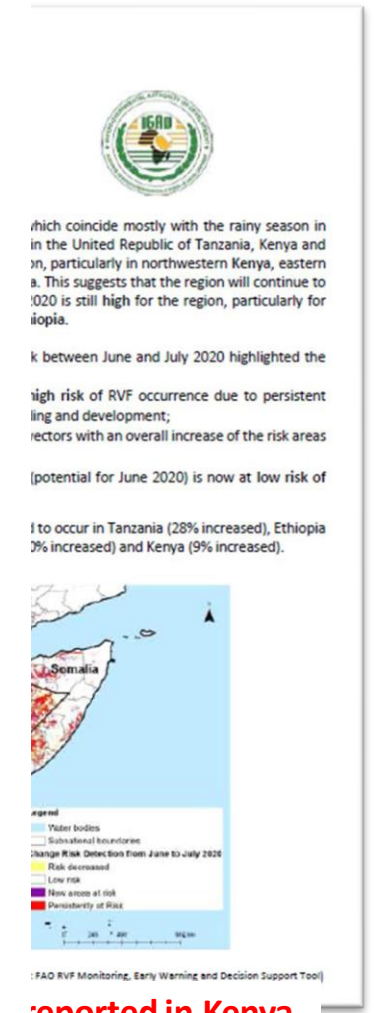
Source: UN, 2020 modified with the data from the web based RVF Early Warning Decision Support Tool, June 2021 (RVF DST).

Disclaimer: The boundaries and names shown and the designations used on these map[s] do not imply the expression of any opinion whatsoever on the part of FAO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Final boundary between the Sudan and South Sudan has not yet been determined. Final status of the Abyei area is not yet determined.

Therefore, FAO and IGAD are advising the countries to increase awareness, improve preparedness at national, subnational and community levels to safeguard livestock, livelihoods and public health, especially for exposed and vulnerable communities (farmers, pastoralists), and improve coordination with public health and environment services around the on-going risk of RVF outbreaks.

More specifically, FAO and IGAD recommend

- National Veterinary Authority to increase awareness about the disease, assess the current situation and the specific risk to the country regarding RVF, and identify the actions to support the country to increase its preparedness to RVF outbreaks.
- National Veterinary Authority to get in touch with their public health counterparts to coordinate joint preparedness activities, especially in countries where there is no One Health platform; to ensure a coordinated One Health and humanitarian approach to this threat.


which coincide mostly with the rainy season in
in the United Republic of Tanzania, Kenya and
on, particularly in northwestern Kenya, eastern
a. This suggests that the region will continue to
020 is still high for the region, particularly for
iopia.

k between June and July 2020 highlighted the

igh risk of RVF occurrence due to persistent
ling and development;
rectors with an overall increase of the risk areas

(potential for June 2020) is now at low risk of

l to occur in Tanzania (28% increased), Ethiopia
0% increased) and Kenya (9% increased).

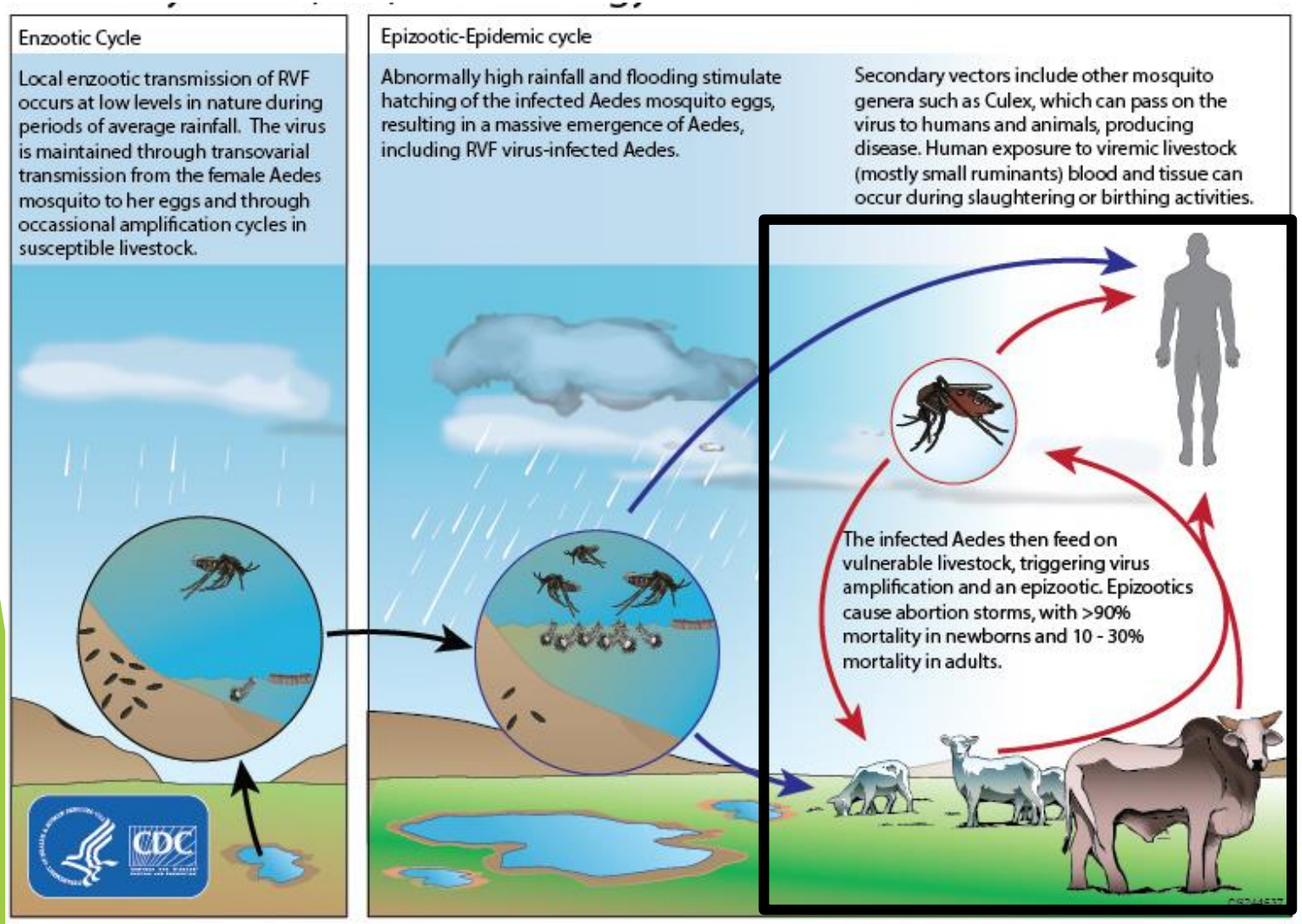
Somalia

FAO RVF Monitoring, Early Warning and Decision Support Tool)

May 2018: RVF rep

eported in Kenya

Challenges



- **Epidemiological shift?**
- **Lack of unified strategic approach**
  - FAO + IBAR + WOAH- any policy recommendations/strategic approach? (do we need a continental one)?
  - Not a listed d'se – has this changed?
  - When is early enough to alert?
- **Who is the custodian of RVF?**

Thank you!

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