

# Strategic Plan for Elimination of Rabies in Kenya

**OIE RABIES MEETING, TUNIS**  
**23-24 July 2019**

Mathew Muturi,  
Kenya

**MOTORING>** Navara is a good car to drive, but just briefly

**#FRONTROW >** The Rio shame that should never be allowed to recur



FREE WITH YOUR DAILY NATION

**DN2**  
Daily Kenya Living  
Wednesday, August 17, 2016

Daily Kenya Living  
Wednesday, August 17, 2016



## Man's best friend? Not here

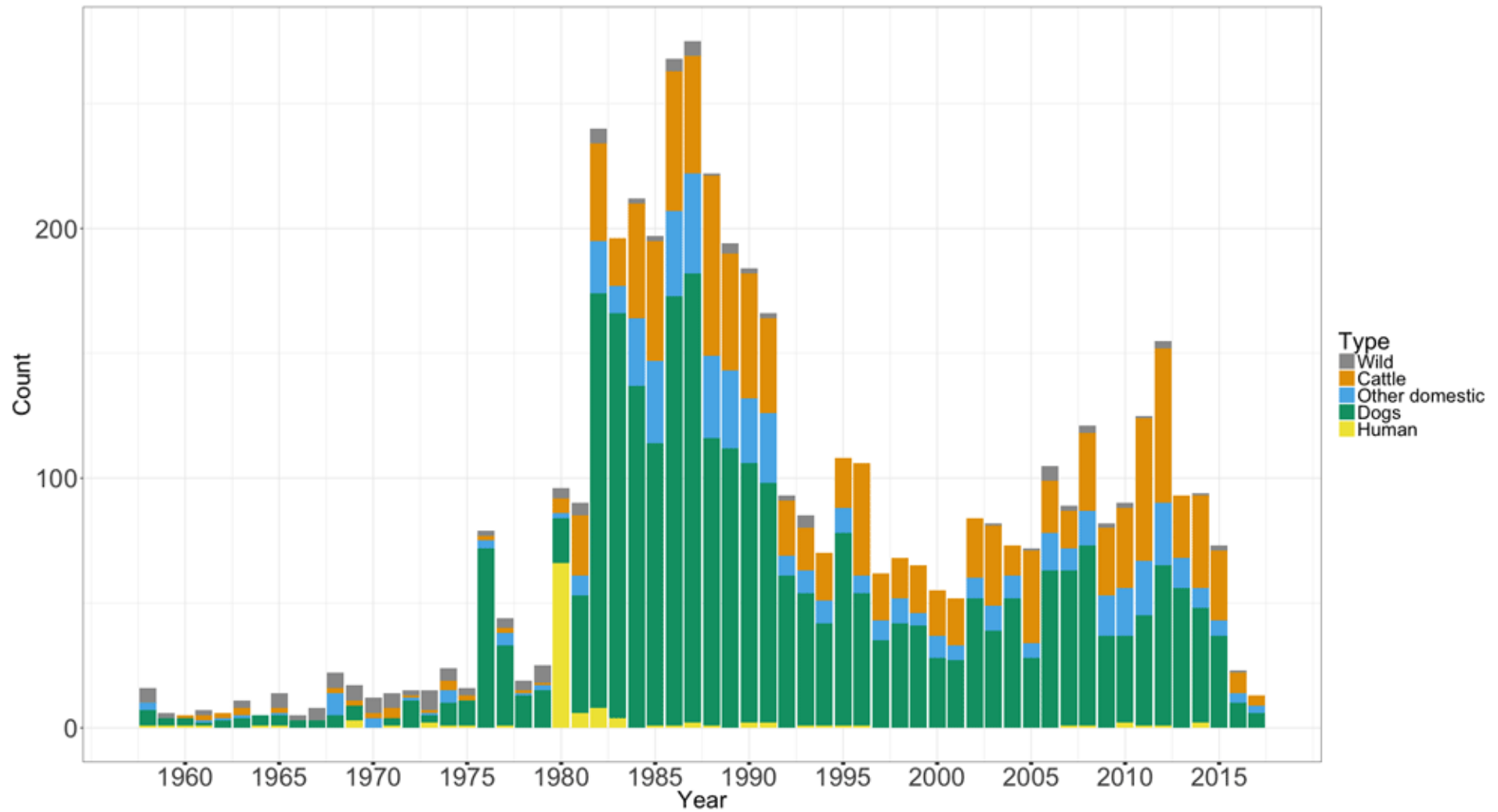
Rabies has flared up in Kisii County, with the referral hospital treating at least 30 dog and cat bites monthly. Villagers here are in a panic. Just who will help them defeat this neglected disease?

Page 2&3

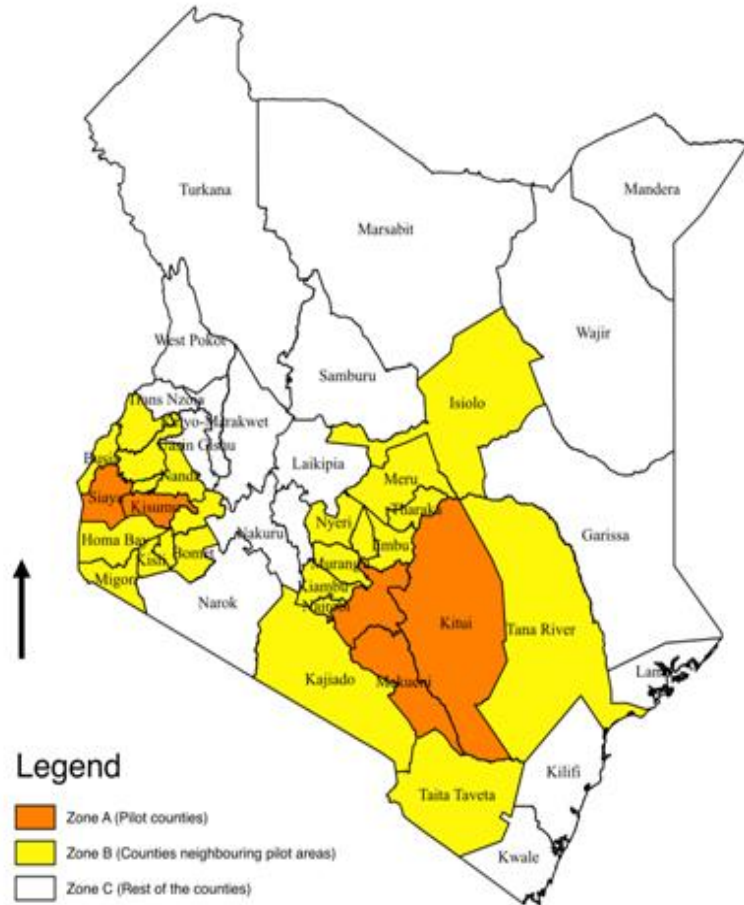
# Rabies in Kenya

- Kenya has a 100 year history of rabies
- First confirmed rabies case recorded in 1912
- Domestic dogs transmit at least 98% of human rabies in Kenya
- It is estimated that between 300-1000 human deaths due to rabies occur annually in Kenya
- The **true burden** of the disease is masked by the poor surveillance system

Trends of confirmed rabies cases by species for the period 1958 to 2017.



# Strategy for rabies Elimination of Human rabies in Kenya



Mass dog vaccination

Prompt provision of PEP

Public Health Education and awareness on rabies

Enhanced surveillance for rabies in humans and animals

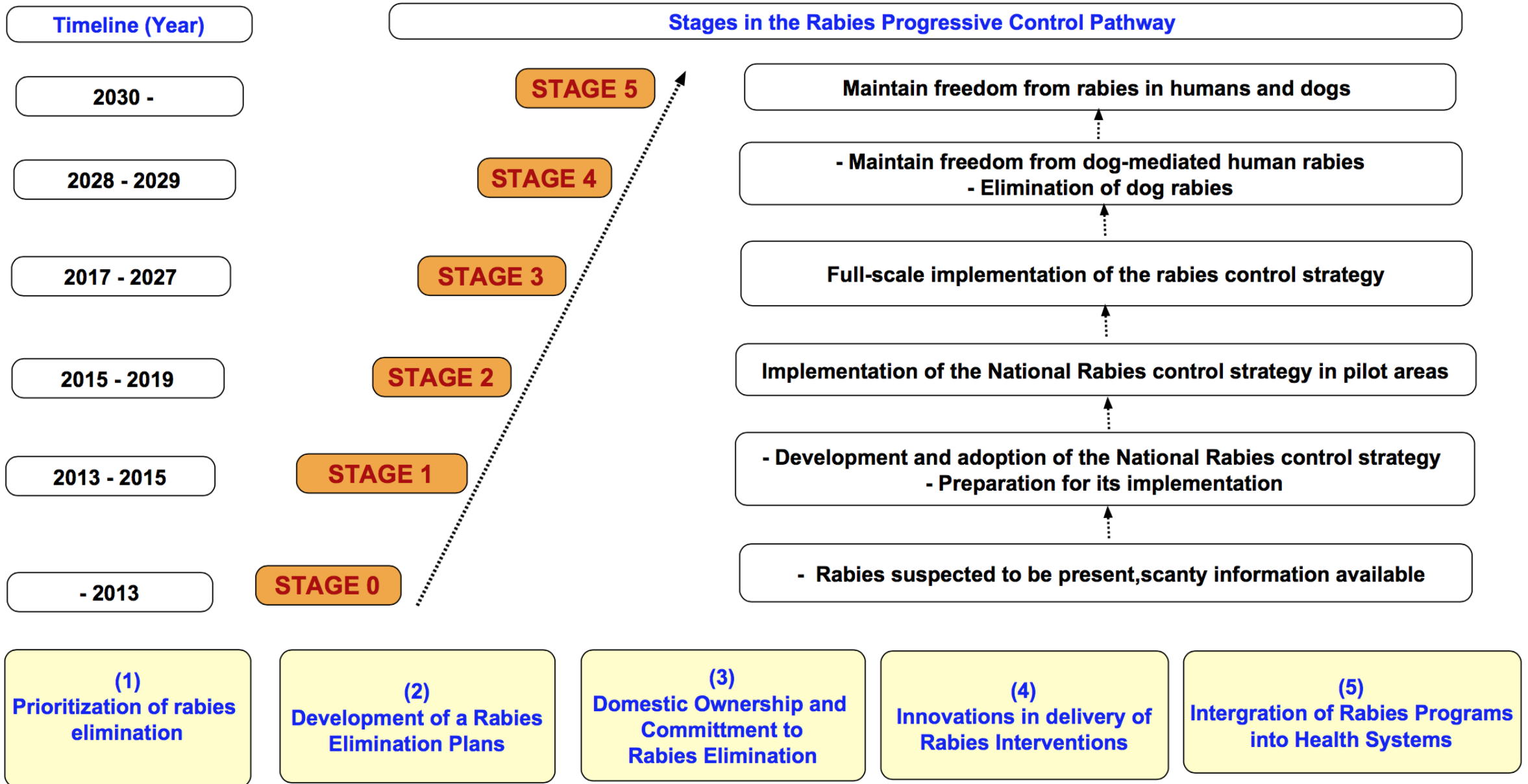
Advocacy, Communication and Social Mobilization

- Estimated human population 50 million people
  - 2.5 - 5.2 million dogs - Rural Kenya
  - 850,000 dogs – Urban Kenya

# The six Guiding principles of the strategy

- Rabies control is a public good – Government responsibility
- Domestic dogs transmit at least 98% of human rabies in E.Africa
- Rabies cycles are maintained by domestic dogs in East Africa ; no evidence of role of wildlife
- Sustained annual mass dog vaccination , at least 3 years, 70% eliminates rabies
- More than 70% of dogs in Kenya are owned and are accessible for parenteral vaccination

# Stepwise approach to rabies elimination in Kenya



# Mass dog vaccinations

- Main pillar of rabies control
- Feasibility? Viability ? sustainability?

- South Africa – Kwa Zulu Natal province

- Animal rabies has been **reduced by >50% in 3 years**

- Philippines

- The number of human deaths from rabies has decreased significantly by **70% reduction**

- Tanzania

- Significant impact in the Serengeti area



# Kenya rabies elimination activities

## Siaya County – Zone A

- Government-led with dog vaccine support from OIE Vaccine bank
- Surveillance through KEMRI/WSU and ZDU

## Kisumu County – Zone A

- 2017 World Rabies Day celebration and 10km rabies run
- Rabies elimination activities not started

## Machakos County – Zone A

- Preliminary rabies elimination activities - ANAW

## Narok and Kajiado Counties Zone B and C

- VSF Germany partnering with Serengeti Health Initiative (providing vaccines)

## Nandi County – Zone B

- Sharon-live-On Foundation

## Samburu County – Zone C

- Action for cheetahs
- Rabies and distemper
- 2017

## Laikipia County – Zone C

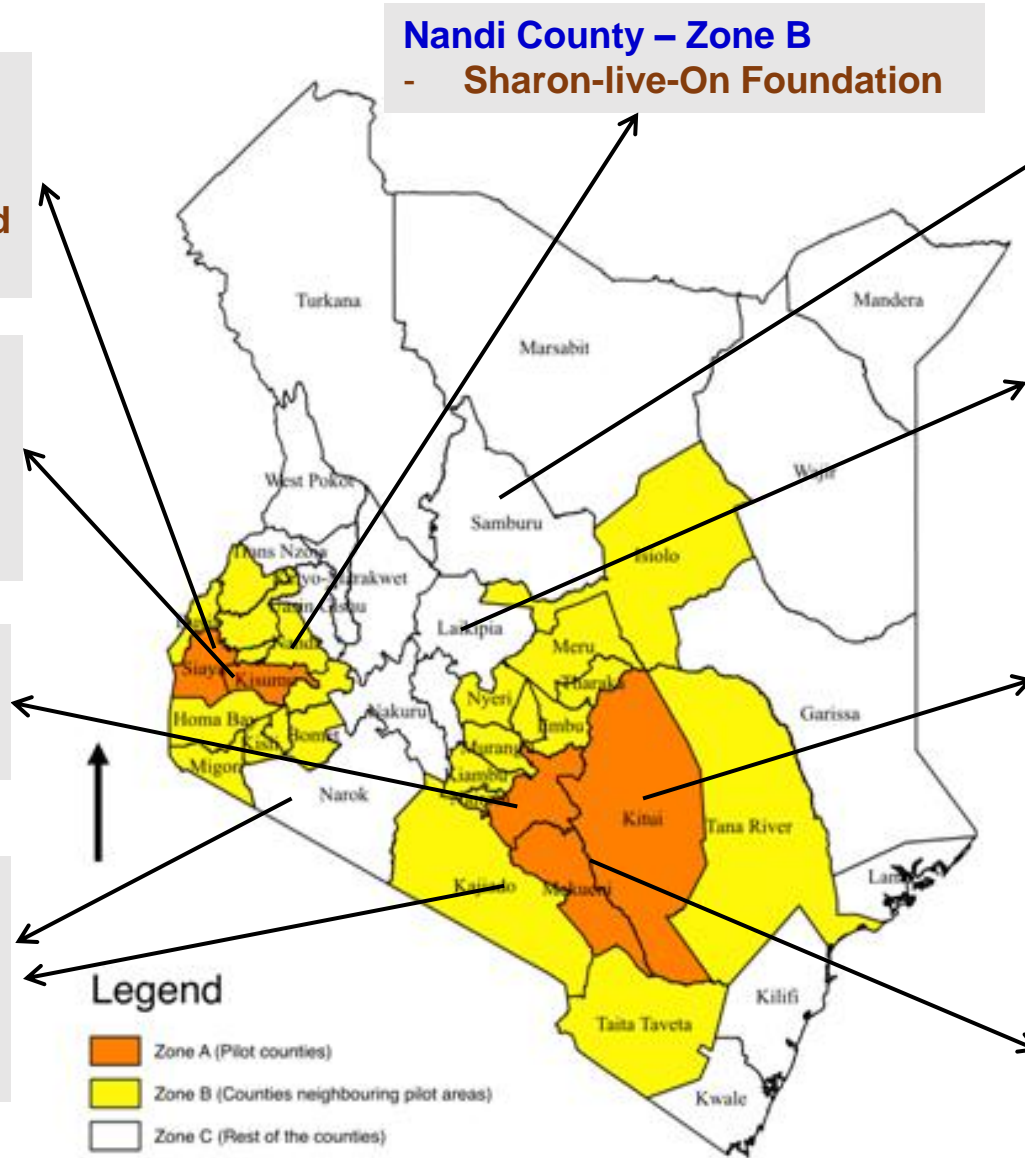
- (2015-2018)
- Laikipia Rabies Vaccination Campaign

## Kitui County – Zone A

- Preliminary dog ecology studies
- Mass dog vaccinations not started yet

## Makueni County – Zone A

- Led by county-government
- 3-years of rabies elimination activities
- Long-standing collaboration with World Animal Protection
- Surveillance through KEMRI/WSU and ZDU



**Rabies elimination activities  
in 10 of 47 counties**



# Surveillance for rabies in the veterinary sector in Kenya

Rabies is a notifiable disease

- All suspect cases of rabies should be reported to the **DVS** and to the **OIE**

Surveillance is a devolved function

- From National to County function (**47 counties carrying independent surveillance and reporting**)

Cases of suspect rabid dogs reported to the County DVS and DVS simultaneously

- Development of a smartphone-based **Kenya Animal Bio-surveillance App (KABs)** for syndromic surveillance and reporting for rabies (bite cases in animals and humans)

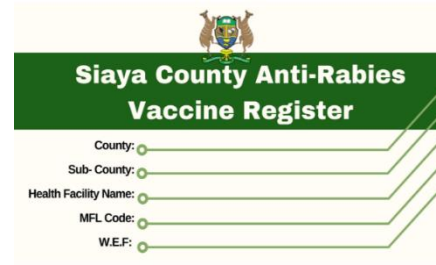
Weak link between veterinary reports state of biting dogs with the health sector

- **Integrated Bite Case Management** only practiced in areas with ongoing rabies research

# Improving data quality



**Toll-Free Number**



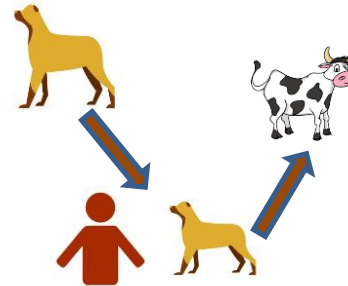
**Hospital Based Surveillance**



**Dog Cohort Study**



**Community Surveillance**

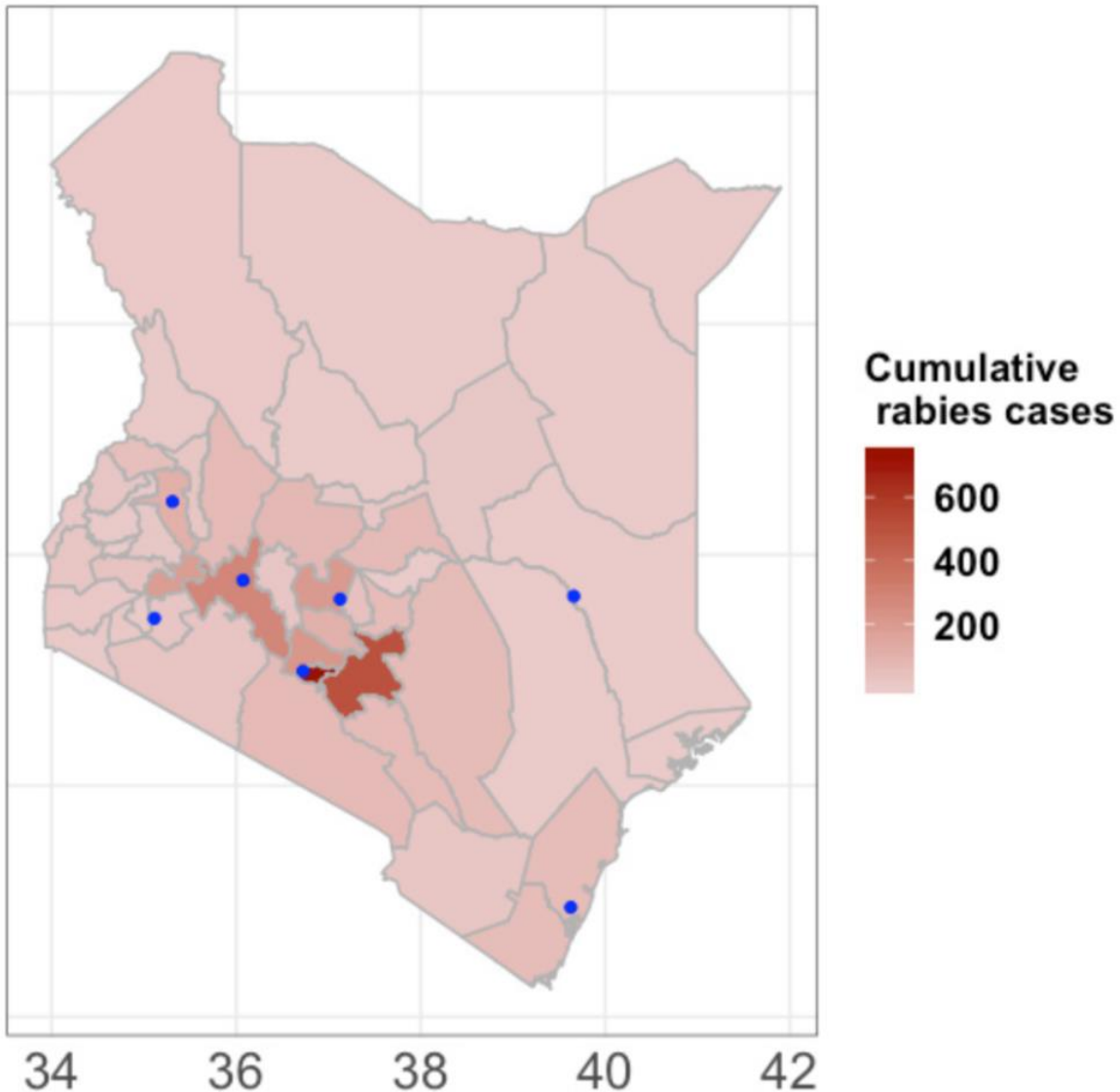


**Contact Tracing**



**Sample Collection**

# Rabies diagnosis - labs



Cumulative number of rabies cases (1958 – 2017) and location of veterinary labs (blue dots) that can make rabies diagnosis.

- 6 regional veterinary investigative labs and one central veterinary lab in Kenya
- DFAT confirmatory diagnosis in 3 of the 7 labs
- Human diagnosis – only in the Central Veterinary lab (until 2012), now also at KEMRI lab and recently at National Public Health laboratories (NPHLs)
- DRIT and PCR – staff from several labs trained. Used routinely at the KEMRI lab

# RABIES FREE KENYA 10km RUN NANDI EDITION

2KM RUN  
FOR KIDS



22nd Sept 2018

VENUE: Kapsabet Show Ground

REGISTRATION: KSH 300

CONTACT: 0723 712 643 / 0719 239 391

ATHLETICS  
KENYA

ZDU REPUBLIC OF KENYA  
ZOO NOTIC  
DISEASE UNIT

SHARON LIVE ON  
FOUNDATION

COUNTY  
GOVERNMENT  
OF NANDI

NEW KENYA  
CO-OPERATIVE  
CREAMERIES LTD

GOLAZO

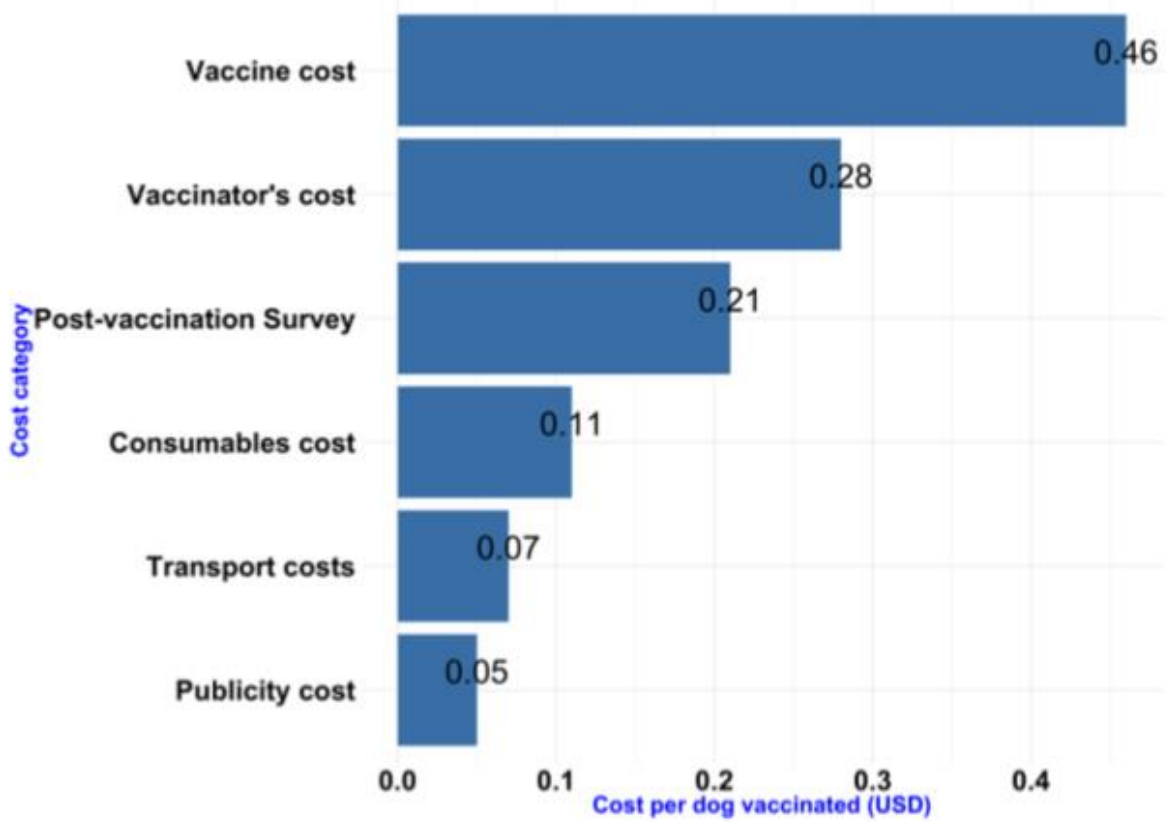
## Rabies awareness is a key driver....



# Lessons learnt - Kenya

- Mass dog vaccinations most successful with involvement of local and national governments
  - Domestic funding for mass dog vaccination is a process involving:
    - Preparation of a county-level elimination plan
    - Development of cabinet papers to solicit for government fund
    - Lobbying appropriate department heads and leaders to prioritize rabies
    - External support/funds an important catalyst for domestic ownership and funding of rabies elimination programs
    - Unexploited opportunities for crowd-funding and foundations at the local levels
- Mass dog vaccinations should be data driven – Post-vaccination surveys and use of phone apps
  - Estimation of dog population sizes and vaccination coverages are easily ignored and should be emphasized as critical components of the elimination strategies
  - Obtaining collars/marker sprays/vaccination cards alongside vaccines
  - Evidence of adequate spatial vaccination coverage difficult to gather without use of phone-based apps supporting vaccination campaigns (e.g the WVS app to aid mapping)

- Cost data from vaccinating 45,000 dogs



- Cost 1.17 dollars/dog vaccinated

# Lessons learnt - Kenya

- **Keeping dog vaccination costs low - Innovations in vaccine delivery**
  - Vaccinations during school holidays, vaccination sites in schools and shopping centers
  - Two sites per team per day, engaging a local person at the village for data entry
  - Use of volunteer vaccinators, large vaccination campaigns, intense campaigns over a short period
  - Bulk procurement of vaccines
- **Development of a dog vaccine demand and supply system**
  - Disconnect between national and county level dog vaccine supply systems (county do “autonomous” vaccine procurement, OIE vaccine bank linked to the national/DVS office)
  - Forecasting for rabies vaccine demand only possible with county-level elimination plans

# Lessons learnt - Kenya

- National rabies elimination secretariat to support county efforts
  - Custodian of national rabies elimination data (more details than would be available at the respective ministries) – coordinating role – eg the Kenya ZDU
  - Coordinate research support (dog ecology and demography, post-vaccination surveys, and human-animal surveillance studies) for the implementing counties
  - Assist in drafting county-level rabies elimination plans including rabies budgets presented at the county cabinet and assembly meetings
- Linking animal surveillance to human surveillance for rabies
  - Health-facilities treat bite patients without information from the veterinary sector
  - Multiple recording systems - health-facility specific software and DHIS2
    - Patient-level data
    - Community and health-facility based syndromic surveillance (acute encephalitis with bite history)
    - Animal syndromic surveillance – include bite cases (Kenya livestock and wildlife syndromic surveillance)
  - Multiple persons involved with bite cases:
    - *Investigation of bite cases by public health and animal health officers*
    - *Bite patients seen by clinicians*
    - *Data on PEP kept by the health facility pharmacist*



# Lessons learnt - Kenya

- Rabies surveillance should include both outpatient and inpatient monitoring of suspect rabies cases
  - Outpatient clinics – reported dog bites – investigated to know the status of the biting dog
  - In-patient – acute encephalitis cases with history of bite
    - Ante-mortem diagnosis for rabies (saliva and skin biopsies)
    - Post-mortem diagnosis for rabies (emphasizes to make this routine with quick turn-around time with diagnosis results)

Ward	Special Drugs Taken Lately	N/A
Cerebral no 1		
Nursing Notes /Report		Reported
		Name
H/o - Aklu... / 37		}
- ram...		
H/o of dog bite		
12 ago ... never treated		
the bite 1/2 ago		
in the dog bite		
treated		
not treated		
H/cent c		

# Acknowledgements



MISSION  
RABIES



University of Nairobi



wellcome trust





# ASANTE

- BEP
- CRDF
- USDA