Experiences, challenges and lessons learnt in implementation of One Health approach in Rabies programmes in Namibia

World Rabies Day Webinar

27 September 2022

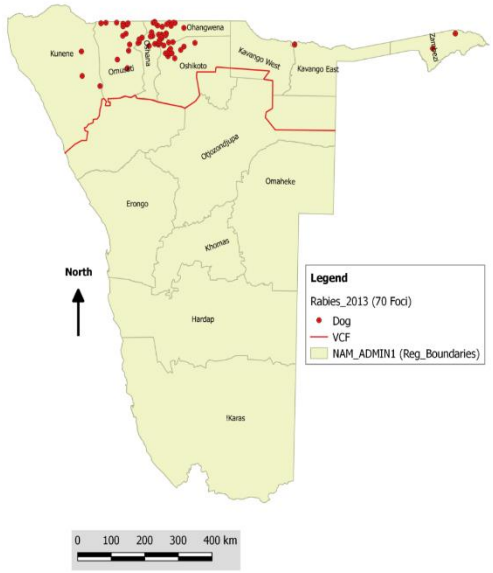
Dr Nehemia Hedimbi

Namibia

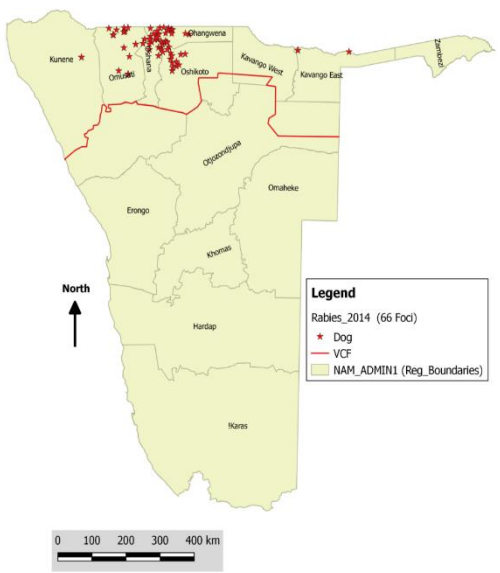
- Area: 825,615 km^2
- Population: 2.59 million people
- Population density: 2.6 person/ km^2
- Namibia is ethnically diverse

Spatial distribution of dog rabies in Namibia 2013 - 2016

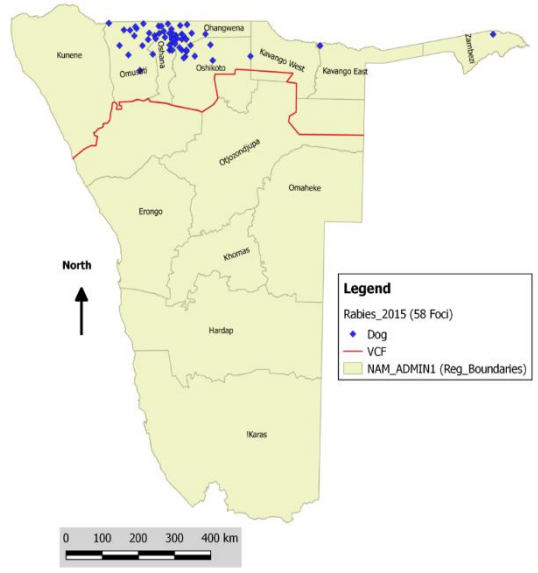
2013



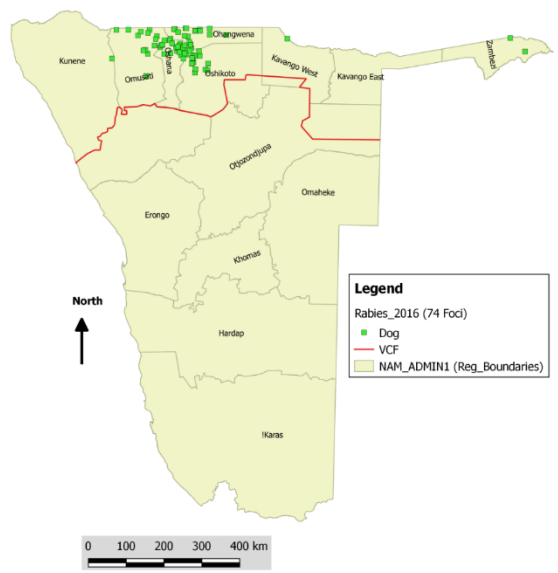
2014



2015

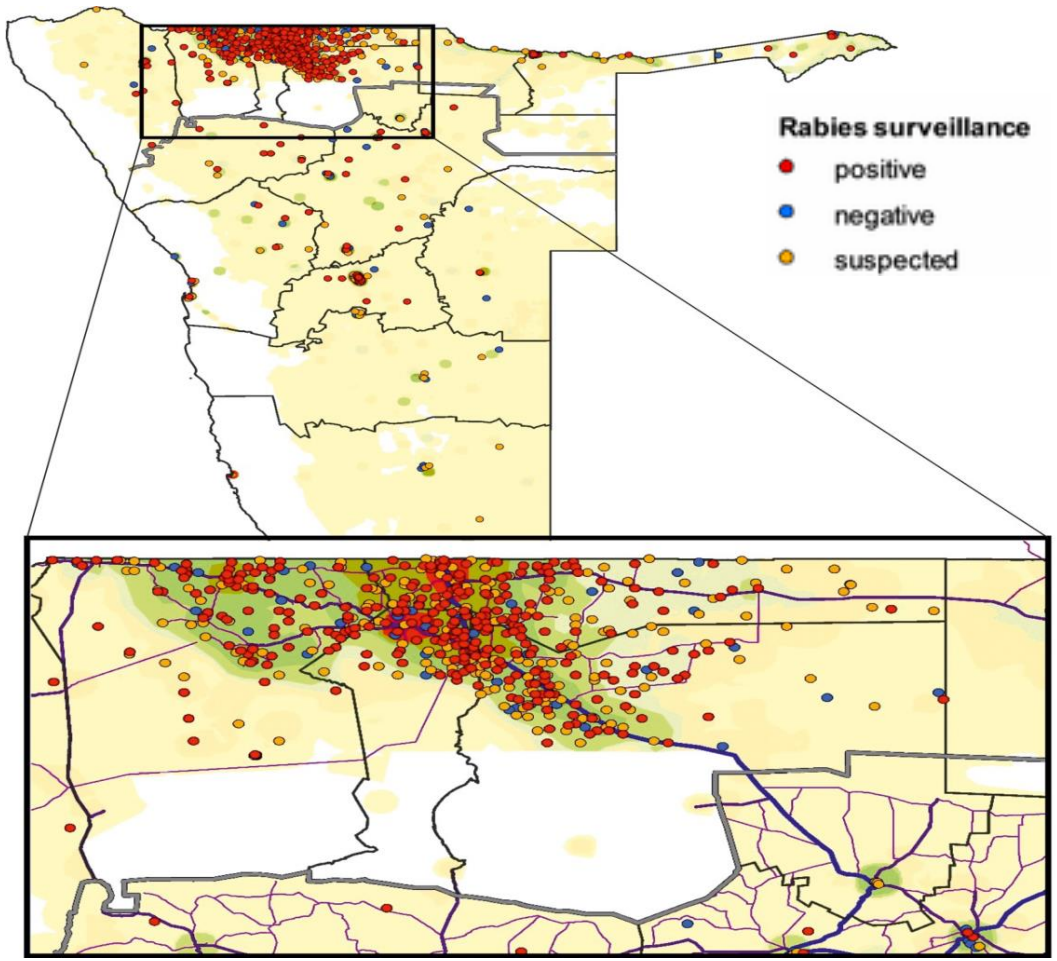


2016

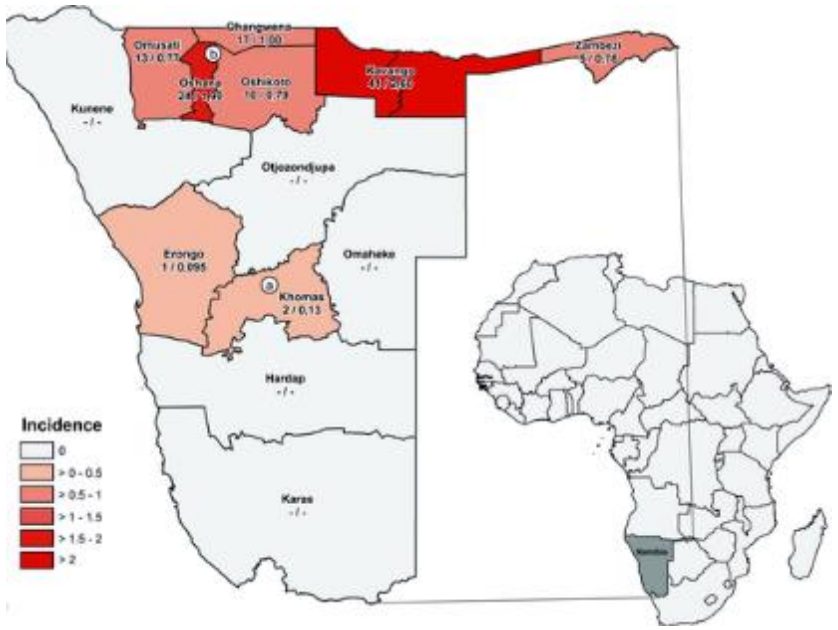


Rabies surveillance in dogs and humans (2011-2017)

Rabies surveillance in dogs



Human rabies incidence



Hikufe et al., 2019, PLOS NTD

Rabies Control Strategy

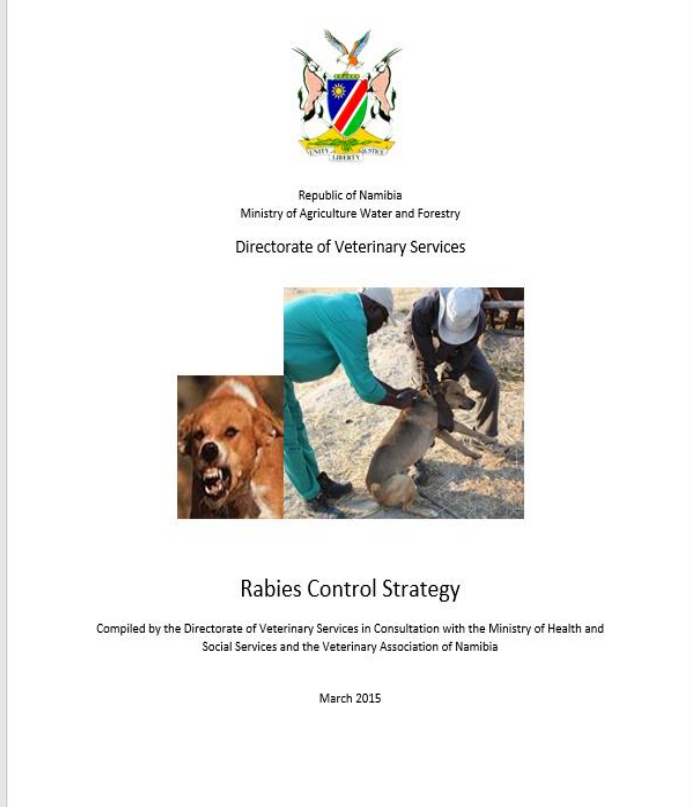
Rabies is a notifiable disease in Namibia as per Animal Health Act 1 of 2011

2011

May 2015

Namibia developed and officially endorsed a “National Rabies Control Strategy ” in May 2015

- Multisectoral One Health approach



Republic of Namibia
Ministry of Agriculture Water and Forestry

Directorate of Veterinary Services

Rabies Control Strategy

Compiled by the Directorate of Veterinary Services in Consultation with the Ministry of Health and Social Services and the Veterinary Association of Namibia

March 2015

WORLD ORGANISATION FOR ANIMAL HEALTH
Protecting animals, preserving our future

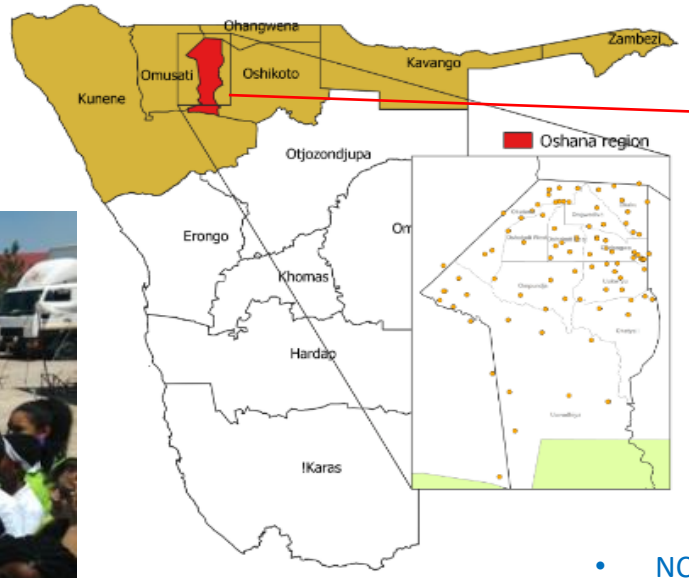
Rabies project

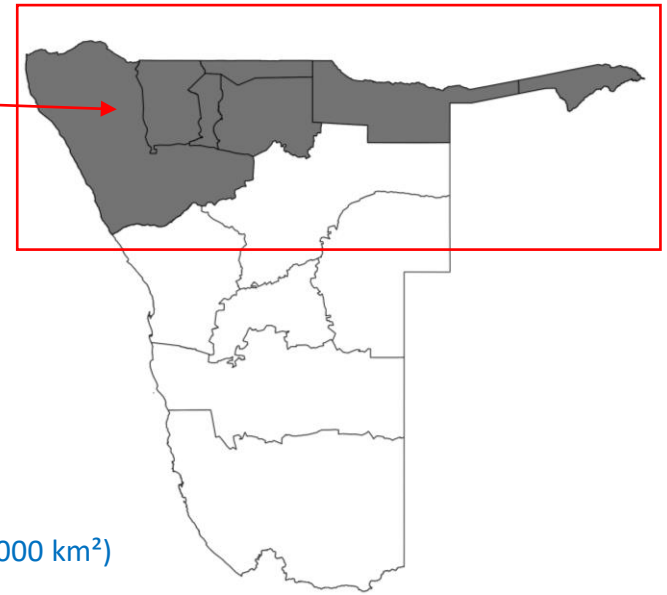
- **Namibia** – "Technical Support for Namibia in Eliminating Rabies in Dogs"
- Catalytic funding of the German Federal Ministry of Food and Agriculture, technical support of WOAH and FLI-Germany, and partners (GARC)
- Pilot phase 2016
- 1st phase (2016-2018)
- 2nd phase (2019-2022)
- 3rd phase (2023-2026)

FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health

Implementation of Project

- Pilot project implemented in Oshana region
  - First campaign started on 2 May 2016
  - Start Small and Build Progress
  - Roll out in entire 8 NCA regions in 2017





- NCAs – huge area (263,000 km²)
- Estimted population - 1.2 million people
- Varying population density – dense to very low
- Spead-out settlements
- Varying infrastructure
- Long distances – West –East: 1500 km
- Namibia-Angola border: 1370 km in length








Capacity building: training of the vaccinators

Rabies awareness education

Rabies awareness education to the children

- **Public education and awareness via TV & radio program, posters/leaflets**

Rabies awareness education teachers and Principals

- **Public education and awareness via presentations and posters**

Rabies awareness education to teachers and principals

- **Public education and awareness via presentations and posters**

Rabies awareness education to Teachers/Principals

- **Public education and awareness via presentations and posters**

Mass dog vaccination campaign

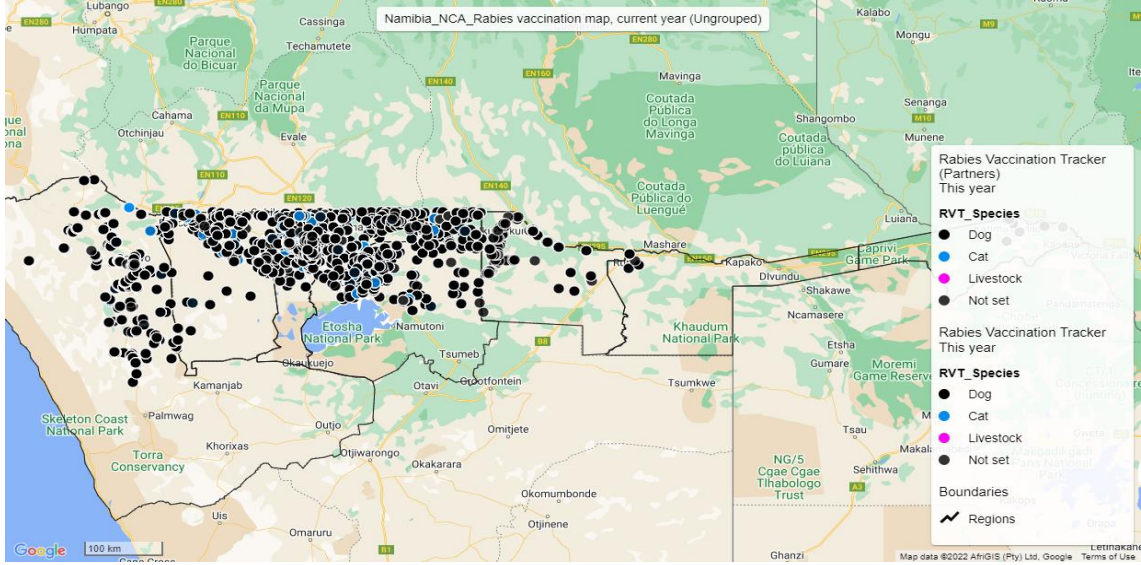
- Targeted campaign - Central point
- Vaccination campaign conducted during school holidays

Dog vaccination at cattle crush pen

- Dog vaccination conducted along with an annual FMD/CBPP vaccination campaign in cattle
- Cover the remote areas
- People without cattle unlikely to bring dogs for vaccination

Vaccination data management

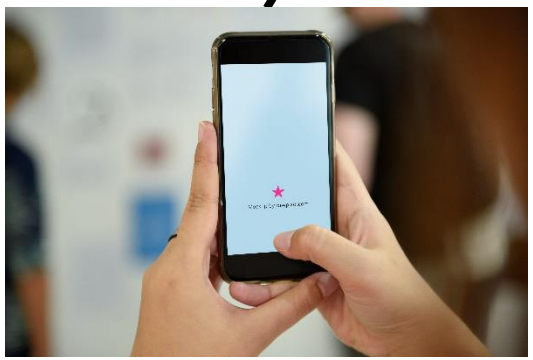
- Used paper-based form
- 2019-2022-used GARC Data logger



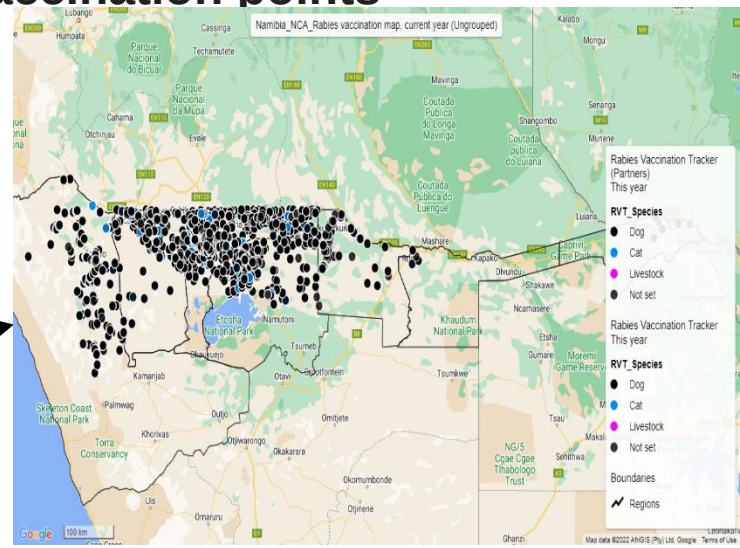
Rabies Epidemiological Bulletin (REB) - GARC

Vaccination data management

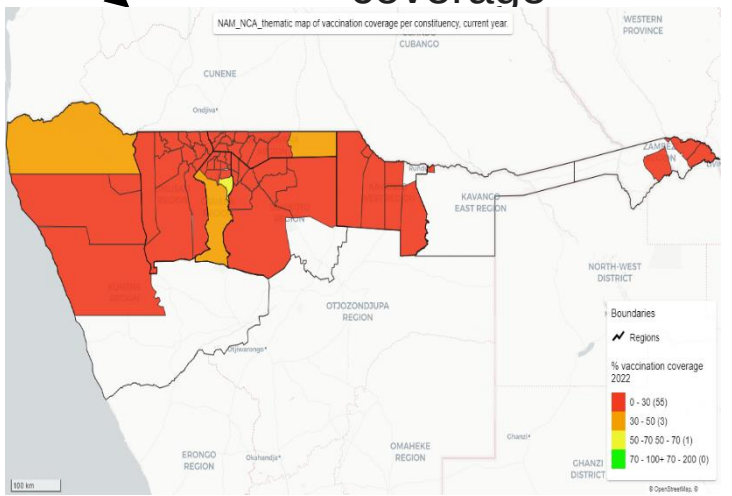
- Mobile App



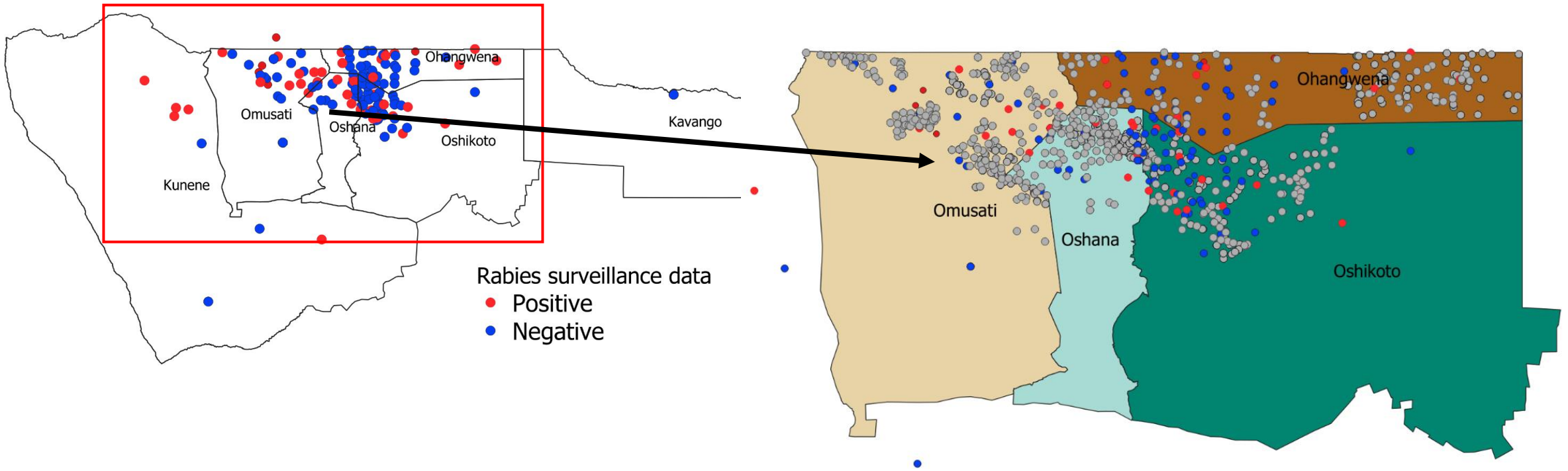
Vaccination points



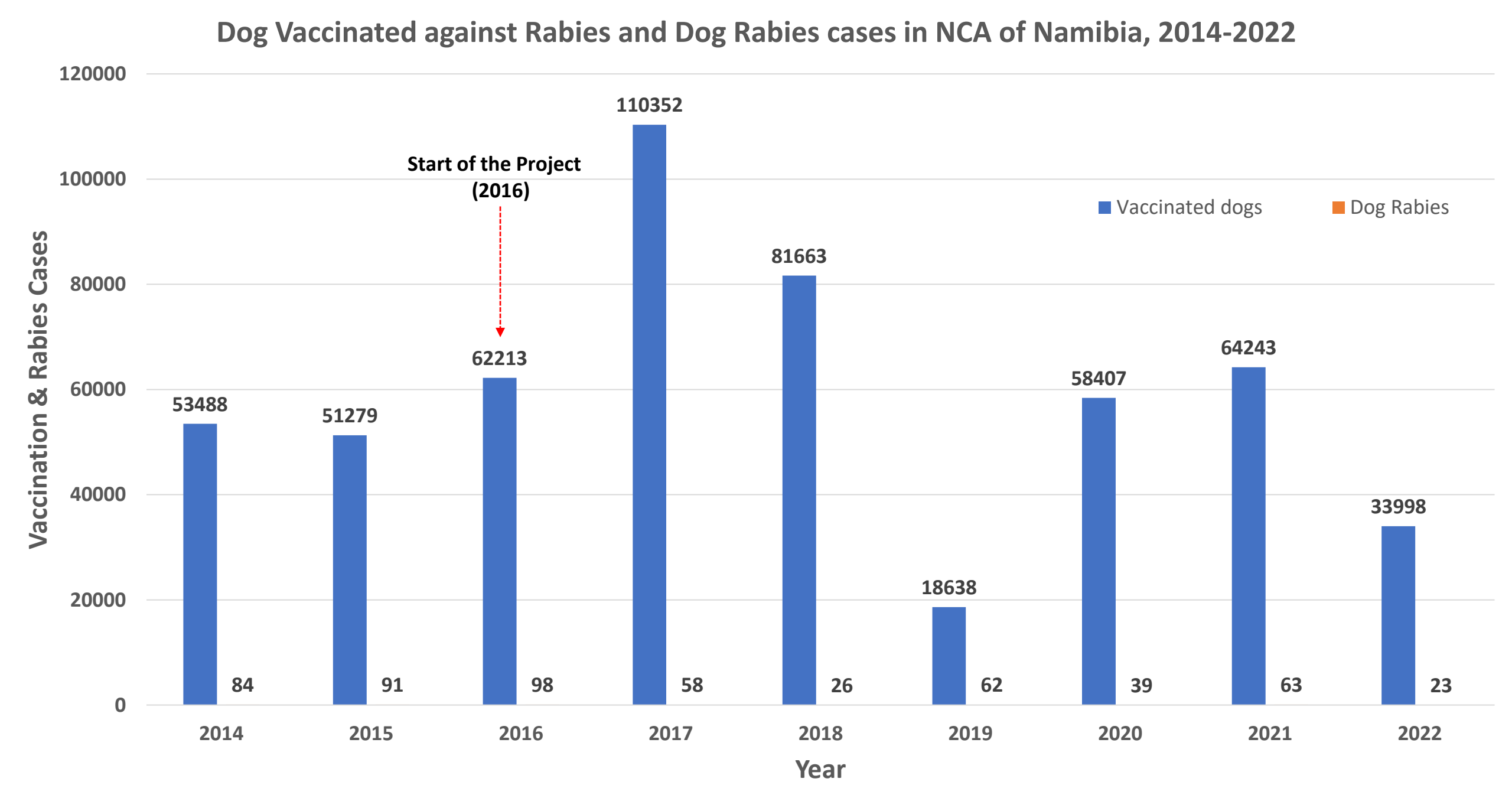
Calculate vaccination coverage



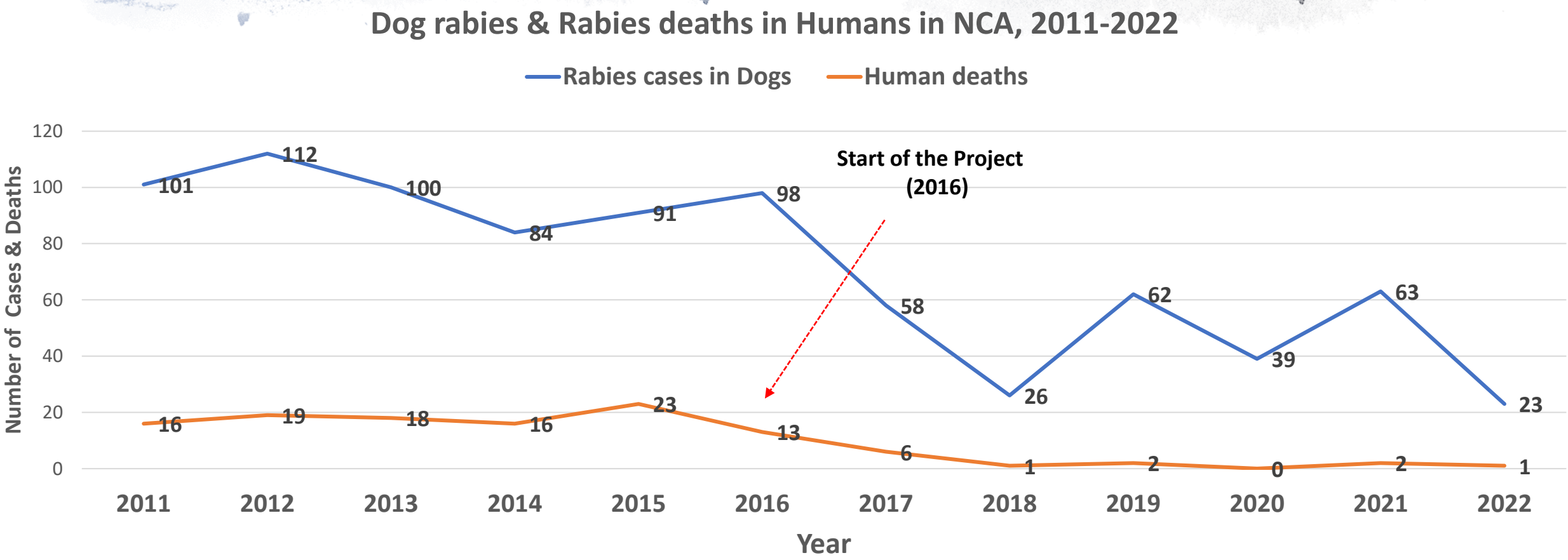
Targeting vaccination on rabies hotspot areas



Gray dots are the location of vaccination points/vaccinated dogs on rabies hot spot areas


Dog Vaccinated against Rabies and Dog Rabies cases in NCA of Namibia, 2014-2022
120000
100000
80000
60000
40000
20000
0
Vaccination & Rabies Cases
Start of the Project
(2016)
Vaccinated dogs
Dog Rabies
53488
84
51279
91
62213
98
110352
58
81663
26
18638
62
58407
39
64243
63
33998
23
2014
2015
2016
2017
2018
2019
2020
2021
2022
Year

Key achievement of the Project: Reduction of rabies incidences in dogs and humans

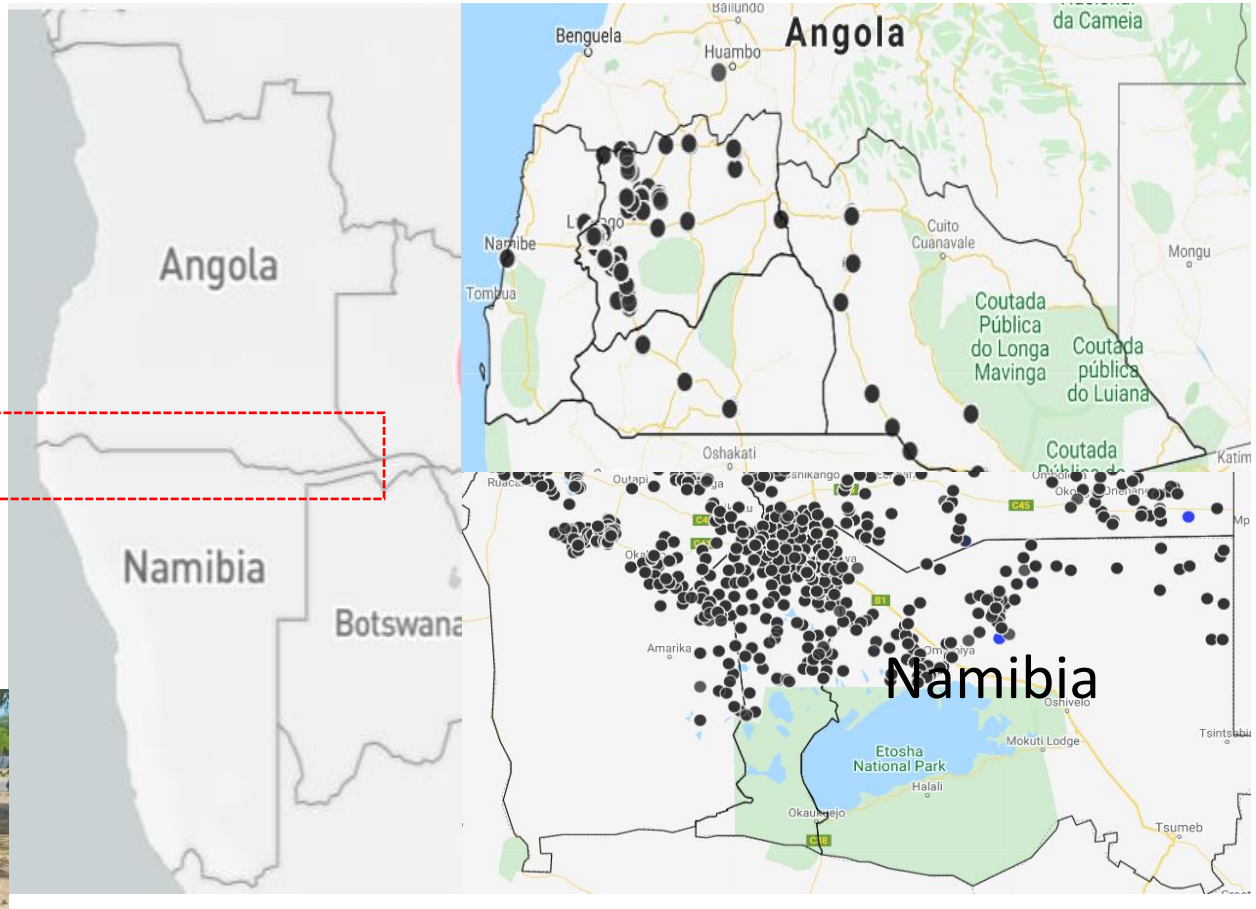


Cross-border collaboration: Namibia and Angola as an example

Cross-border harmonization meeting on rabies control program between Angola and Namibia (September 2019) and development of action plan

Cross-border collaboration: Namibia and Angola as an example

Cross-border dog vaccination campaign



ORV field trail conducted in Namibia

frontiers in Veterinary Science

ORIGINAL RESEARCH
published: 25 October 2021
doi: 10.3389/fvets.2021.737250

Immunogenicity of the Oral Rabies Vaccine Strain SPBN GASGAS in Dogs Under Field Settings in Namibia

Umberto Molini[1†], Rainer Hassel[1†], Steffen Ortmann[2], Ad Vos[2], Malaika Loschke[1], Albertina Shilongo[3], Conrad M. Freuling[4] and Thomas Müller[4]*

[1] School of Veterinary Medicine, University of Namibia, Windhoek, Namibia, [2] Ceva Innovation Center, Ceva Santé Animale, Dessau-Roßlau, Germany, [3] Directorate of Veterinary Services, Ministry of Agriculture, Water and Land Reform, Windhoek, Namibia, [4] Institute of Molecular Virology and Cell Biology, Friedrich-Loeffler-Institut, WHO Collaborating Centre for Rabies Surveillance and Research, OIE Reference Laboratory for Rabies, Riems, Germany

https://www.frontiersin.org/articles/10.3389/fvets.2021.737250/full

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Oral rabies vaccination of dogs – experiences from a field trial in Namibia

Conrad M. Freuling, Frank Busch, Ad Vos, Steffen Ortmann, Frederic Lohr, Nehemia Hedimbi, Josephat Peter, Herman Adimba Nelson, Kenneth Shoombe, Albertina Shilongo, Brighton Gorejena, Lukas Kaholongo, Siegfried Khaiseb, Jolandie van der Westhuizen, Klaas Dietze, Goi Geurtse, Thomas Müller

doi: https://doi.org/10.1101/2022.04.21.488865

vaccination (ORV) of dogs being a possible solution. Using a third-generation vaccine and a standardized egg-flavoured bait, bait uptake and vaccination was assessed under field conditions in Namibia. During this trial, both veterinary staff as well as dog owners expressed their appreciation to this approach of vaccination. Of 1,115 dogs offered a bait, 90% (n=1,006, 95%CI:91-94) consumed the bait and 72.9% (n=813, 95%CI:70.2-75.4) of dogs were assessed as being vaccinated, while for (11.7%, n=130, 95%CI:9.9-17.7) the status was recorded as "unkown" and 15.4% (n=172, 95%CI: 13.4-17.7) were considered as being not vaccinated. Smaller dogs and dogs offered a bait with multiple other dogs had significantly higher vaccination rates, while other factors, e.g. sex, confinement status and time had no influence.

https://www.biorxiv.org/content/10.1101/2022.04.21.488865v1

https://www.fli.de/en/news/short-messages/short-message/fli-supports-first-successful-field-trial-for-oral-rabies-vaccination-of-dogs-in-namibia/

OIE endorsement of a national control programme

Namibia National Rabies Control Programme was officially endorsed by WOAH in May 2021

WOAH Members are highly encouraged to apply for WOAH endorsement of your national control plan

https://www.who.int/news/item/07-08-2020-oie-endorsement-of-official-control-programmes-for-dog-mediated-rabies

PLOS NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

Application of the GARC Data Logger—a custom-developed data collection device—to capture and monitor mass dog vaccination campaigns in Namibia

Rauna Athingo[1☯‡], Tenzin Tenzin[2☯‡*], Andre Coetzer[3,4], Emmanuel H. Hikufe[5], Josephat Peter[6], Laina Hango[6], Tangeni Haimbodi[7], Johannes Lipinge[7], Frenada Haufiku[8], Matias Naunyango[9], Magano Kephas[9], Albertina Shilongo[5], Kenneth K. Shoombe[1], Siegfried Khaiseb[10], Moetapele Letshwenyo[2], Patricia Pozzetti[11], Lorenz Nake[11], Louis H. Nel[3,4], Conrad M. Freuling[12], Thomas Müller[12], Gregorio Torres[11]

PLOS | NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

Ecology and epidemiology of rabies in humans, domestic animals and wildlife in Namibia, 2011-2017

Emmanuel H. Hikufe[1☯], Conrad M. Freuling[2☯*], Rauna Athingo[3], Albertina Shilongo[1], Emmy-Else Ndevaetela[4], Maria Helao[4], Mathews Shiindi[4], Rainer Hassel[5], Alec Bishi[5], Siegfried Khaiseb[6], Juliet Kabajani[6], Jolandie van der Westhuizen[6], Gregorio Torres[7], Andrea Britton[8], Moetapele Letshwenyo[8], Karin Schwabenbauer[9], Thomas C. Mettenleiter[2], Nicolai Denzin[10], Susanne Amler[10], Franz J. Conraths[10], Thomas Müller[2], Adrianatus Maseke[1]

Tropical Medicine and Infectious Disease

MDPI

Article

Fighting Dog-Mediated Rabies in Namibia—Implementation of a Rabies Elimination Program in the Northern Communal Areas

Rauna Athingo [1,†], Tenzin Tenzin [2,†], Albertina Shilongo [3], Emmanuel Hikufe [3], Kenneth K. Shoombe [1], Siegfried Khaiseb [4], Jolandie van der Westhuizen [4], Moetapele Letshwenyo [2], Gregorio Torres [5], Thomas C. Mettenleiter [6], Conrad M. Freuling [6] and Thomas Müller [6,*]

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Oral rabies vaccination of dogs—Experiences from a field trial in Namibia

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Annual Review and Planning Meeting

Lesson learned

- Constant Mass Dog Vaccination can reduce dog mediated rabies in humans
- Adequate rabies awareness to schools (teachers, principals and children) can increase vaccination coverage, reduce deaths due to rabies, improves PEP and dog bites management
- Inter-sectoral, regional and international collaboration is the key to rabies elimination by 2030.

Challenges

- COVID-19 pandemic has hampered the activities
- Resources and logistics
  - Inadequate budget
  - Transports
  - Manpower
- Engagement in other important priority diseases
  - CBPP and FMD outbreaks
  - Others

Acknowledgements

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für Ernährung
und Landwirtschaft

World Organisation
for Animal Health
Founded as OIE

Republic of Namibia

Ministry of Health and Social Services

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Bundesforschungsinstitut für Tiergesundheit

Federal Research Institute for Animal Health

Thank you for your kind attention