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HARNESSING THE ENGAGEMENT OF VETERINARY SERVICES WITH PRIVATE SECTOR FOR COLLECTIVE ACTION AGAINST DOG-MEDIATED RABIES IN AFRICA

Turning research into action: Evidence-based planning for rabies control

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Theme:

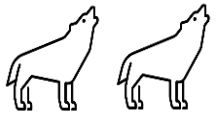
Act Now: You, Me, Community

Context

- Dogs play both a **utilitarian** and **emotional** role in communities
- **Dog vaccination** is the most cost-effective way to control rabies
- Success requires vaccinating **≥70% of dogs** in at-risk areas (Africa & Asia)
- Vaccines and know-how exist — but **logistics remain the challenge**
- Yet, **human rabies deaths continue**, highlighting delivery gaps

Why evidence-based decisions matter

Vaccination campaigns are expensive: Need to maximise impact per dollar



Dog populations vary (urban vs rural, roaming vs confined): “one size fits all” doesn’t work

Data guides planning: where to vaccinate, how many teams, which delivery methods

Evidence aligns partners: Government, NGOs, private vets can coordinate efforts

Without data, resources are wasted and coverage goals aren’t met

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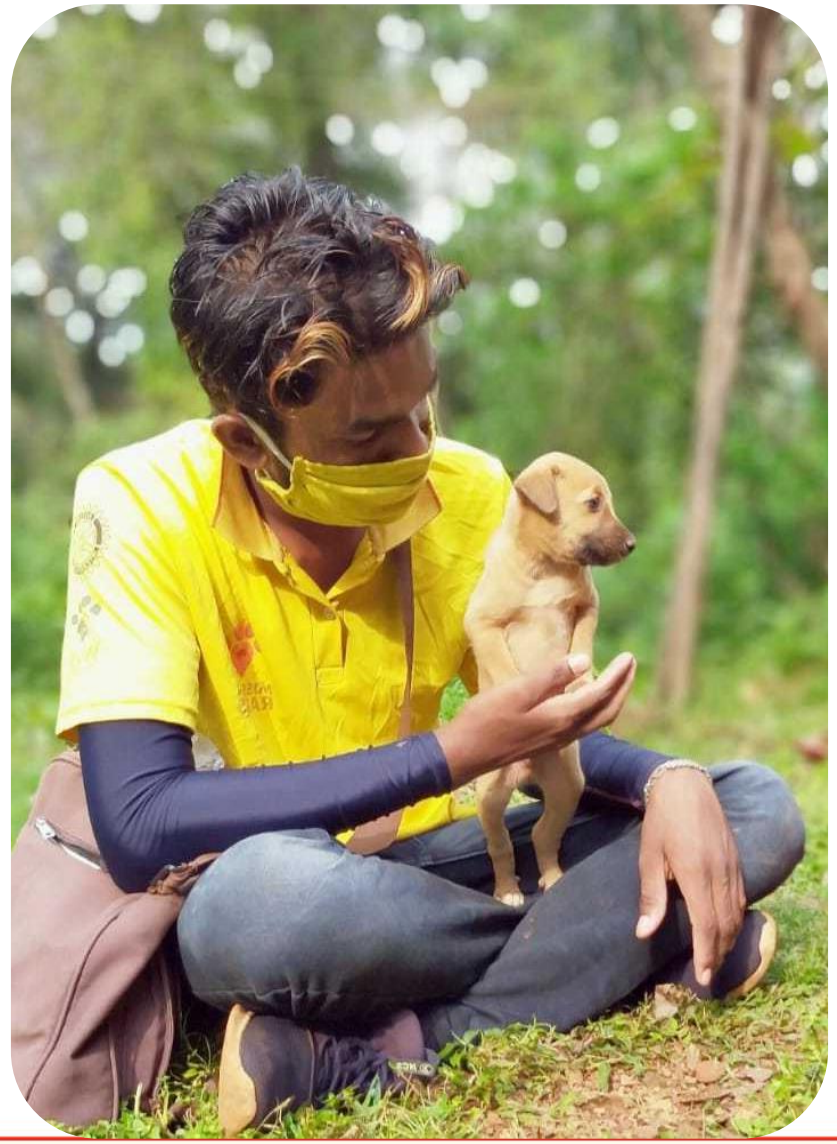

WVS
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MISSION RABIES

IRT
INTERNATIONAL RABIES TASKFORCE

HARNESSING THE ENGAGEMENT OF VETERINARY SERVICES WITI PRIVATE SECTOR FOR COLLECTIVE ACTION AGAINST DOG-MEDIAT

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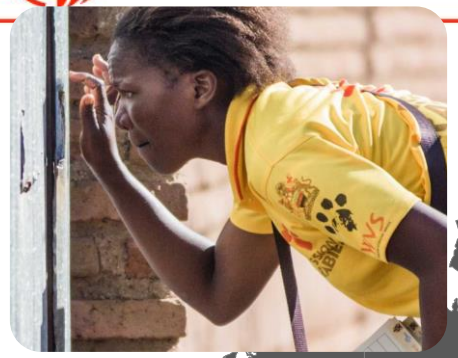
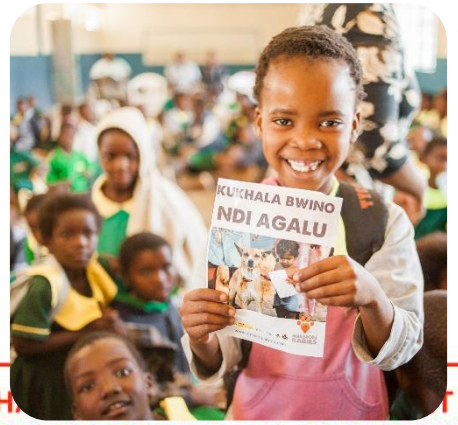
MR CAMPAIGNS

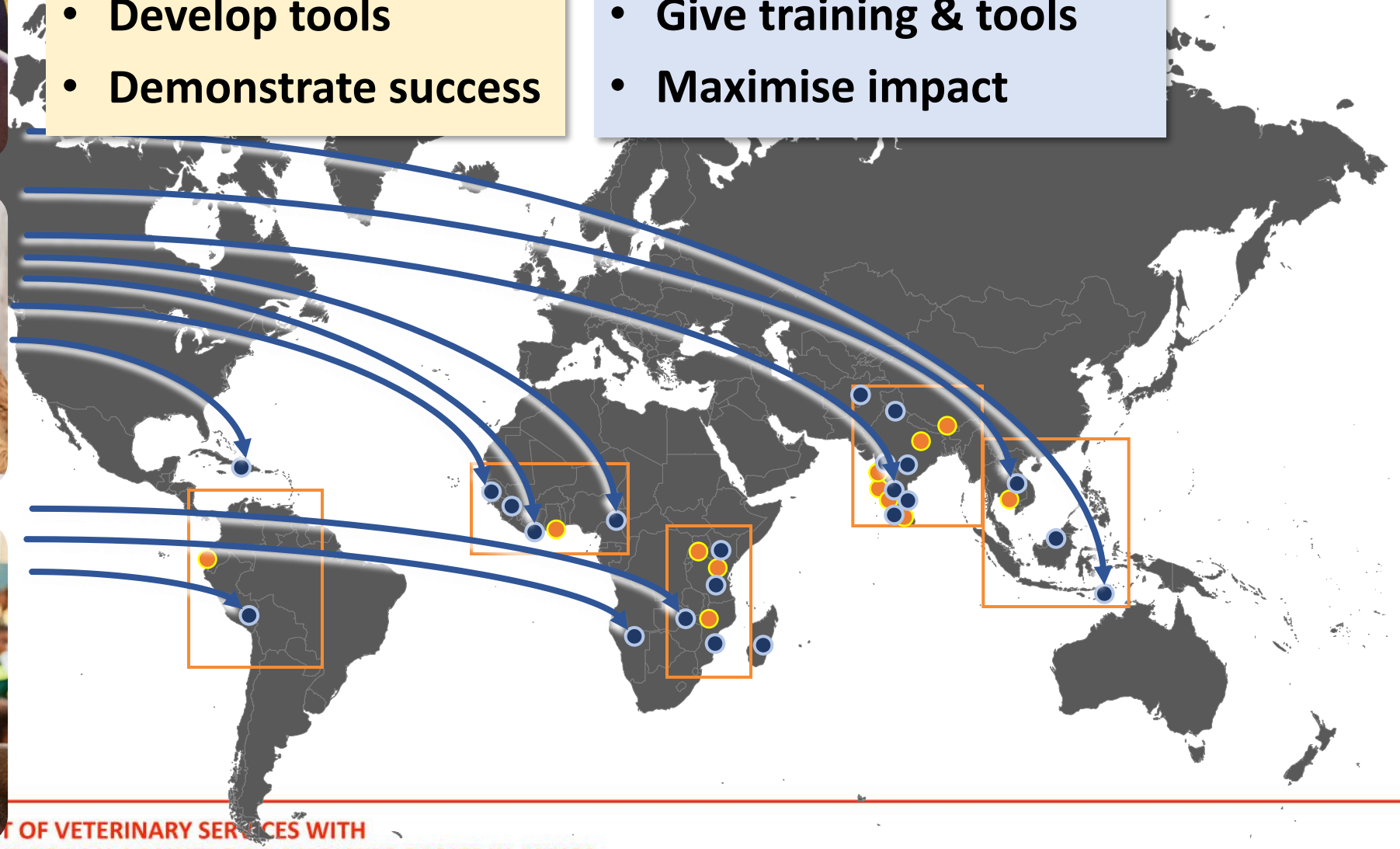
- Refine methods
- Develop tools
- Demonstrate success

TECHNICAL SUPPORT

- Increase confidence
- Give training & tools
- Maximise impact







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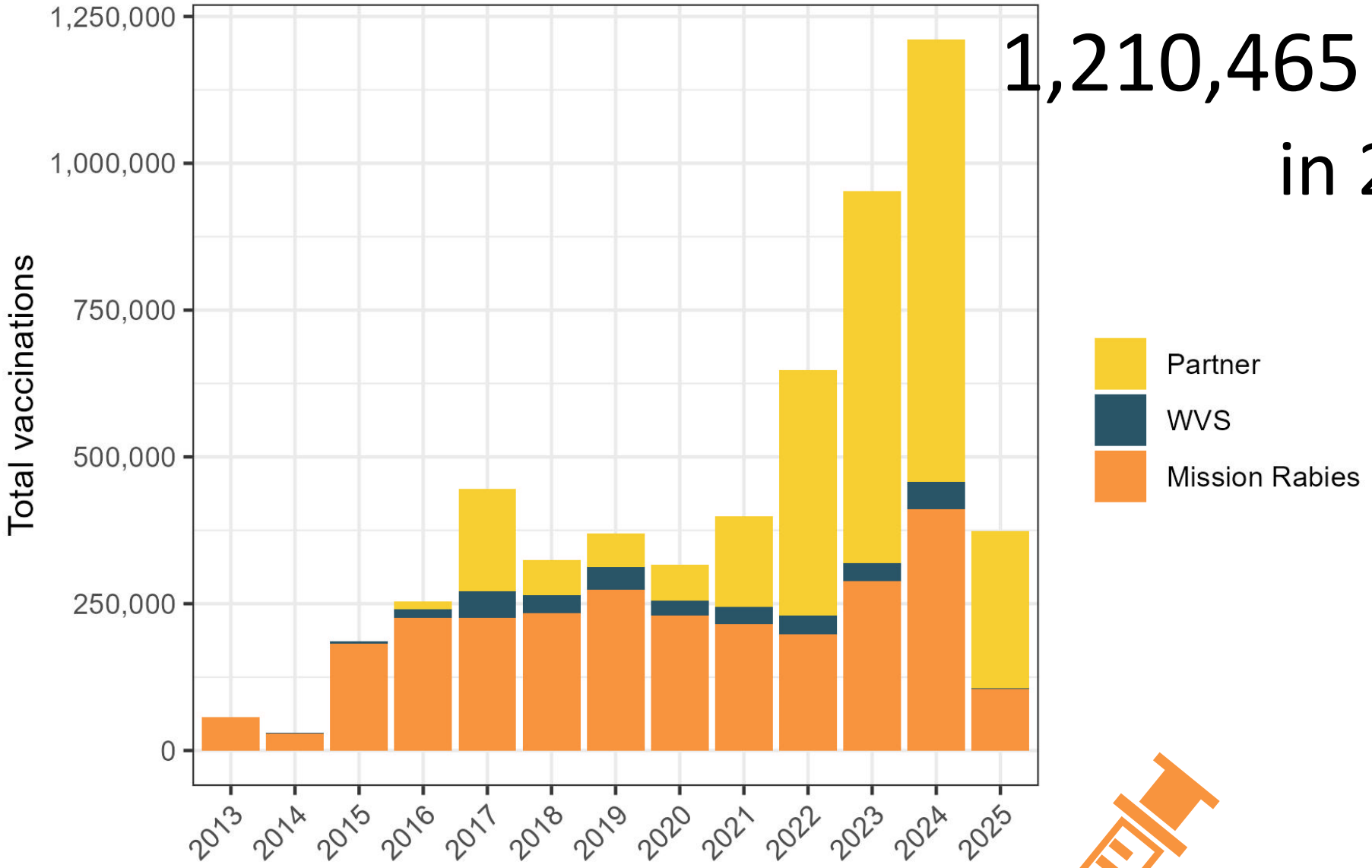
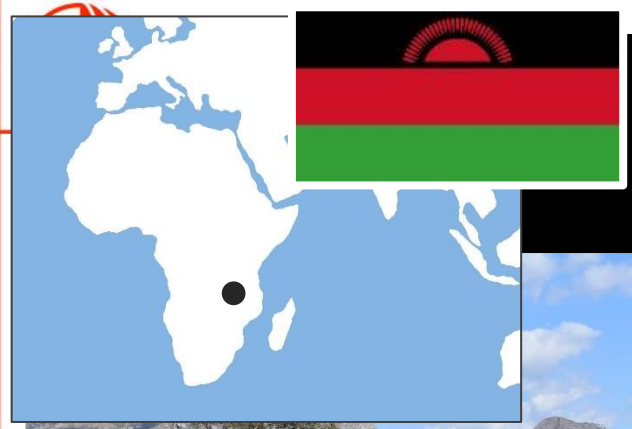
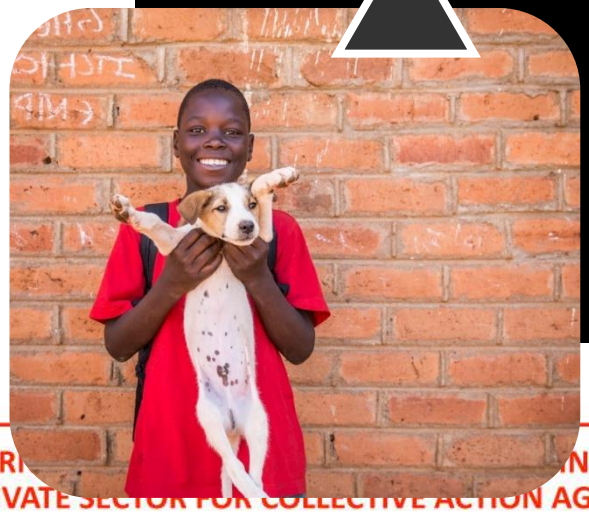


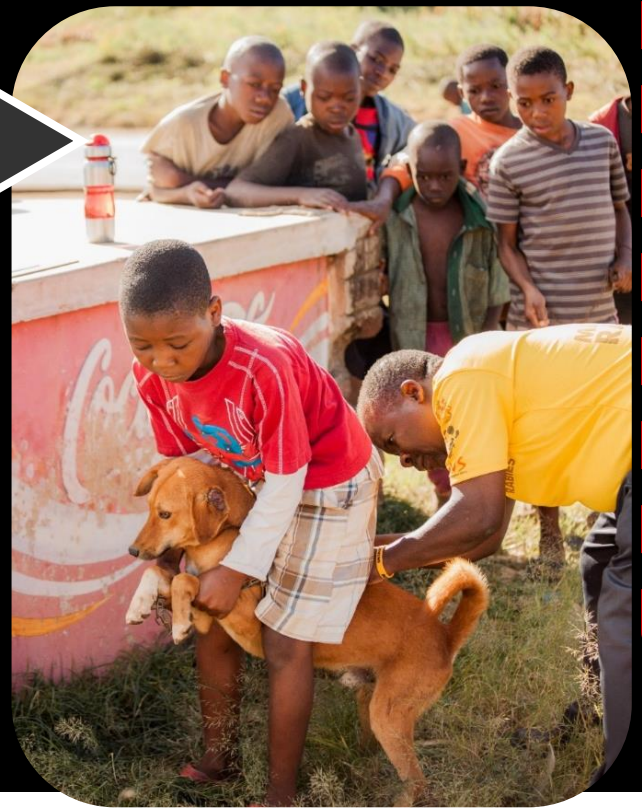
1,210,465

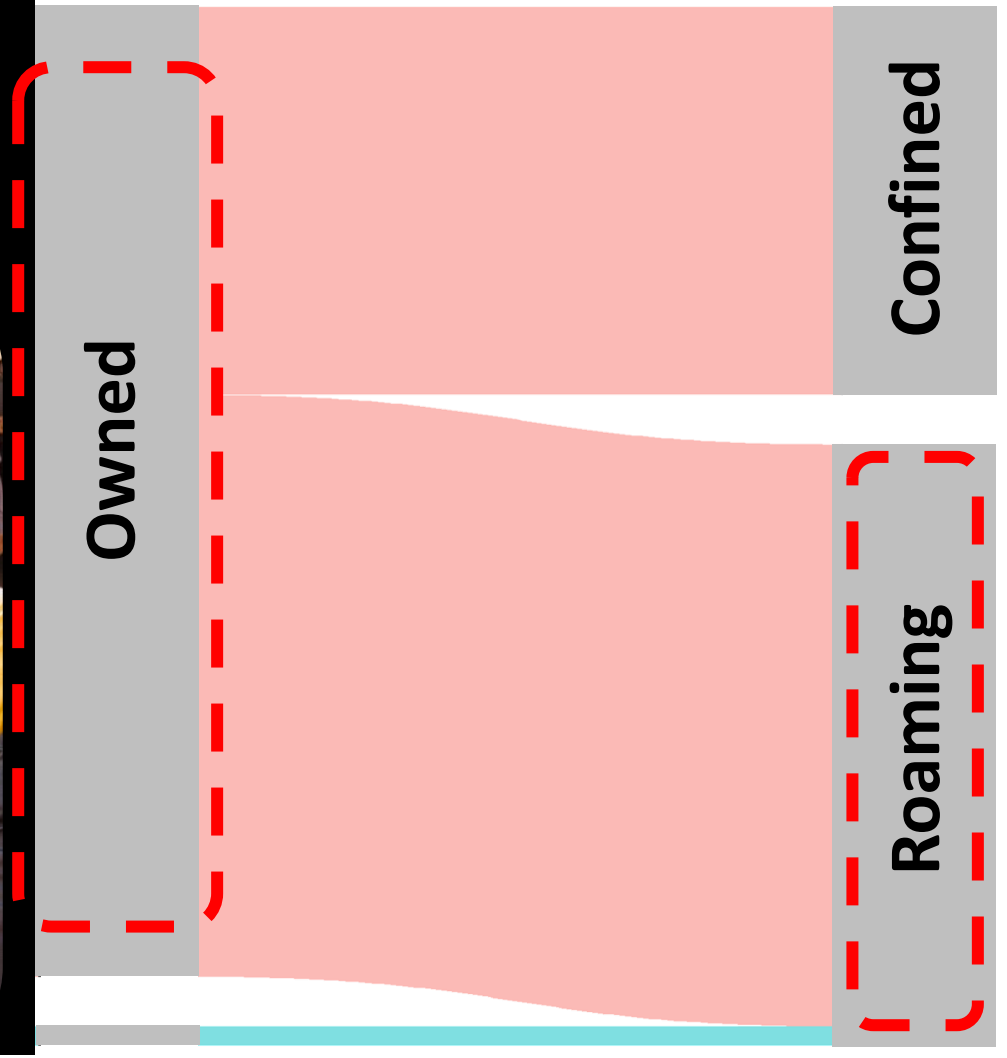
in 2024

5,569,704

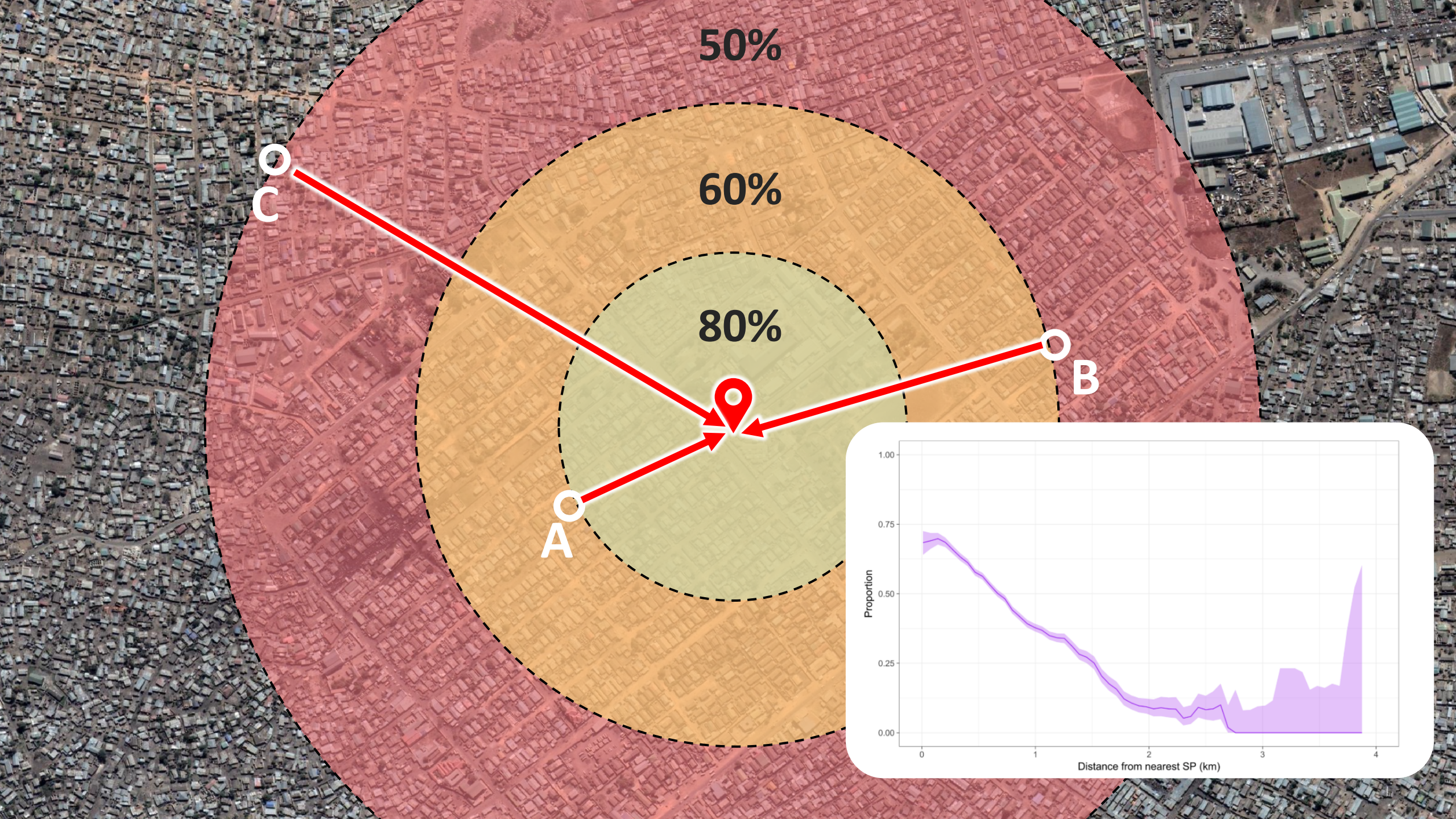







Owned
Confined
Roaming


C
B
A
1.00
0.75
0.50
0.25
0.00
Proportion
0
1
2
3
4
Distance from nearest SP (km)


50%
60%
80%
C
B
A
1.00
0.75
0.50
0.25
0.00
Proportion
0
1
2
3
4
Distance from nearest SP (km)

PNAS

Using data-driven approaches to improve delivery of animal health care interventions for public health

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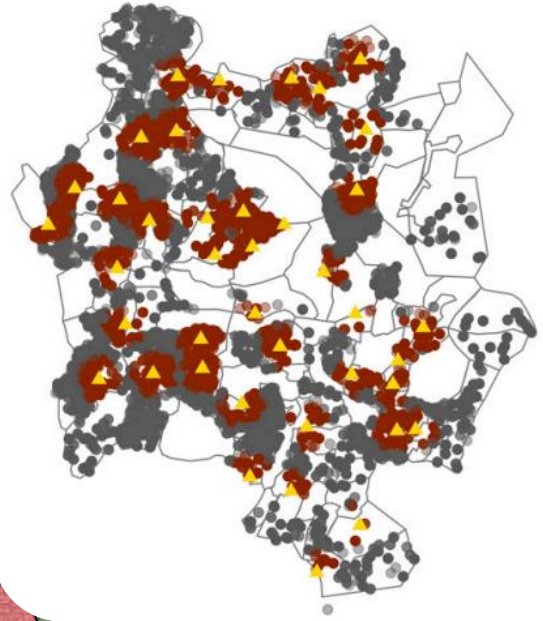
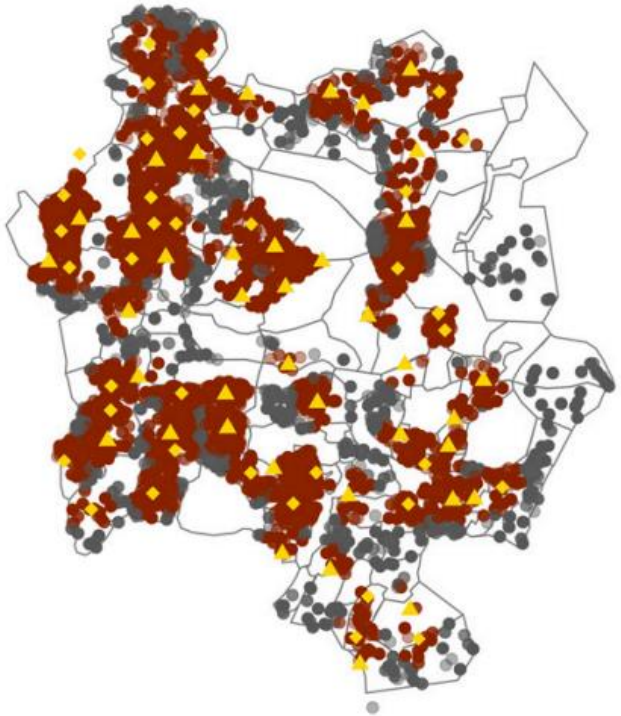
2017 campaign
49% dogs within 812m radius



2018 campaign
77% dogs within 812m radius



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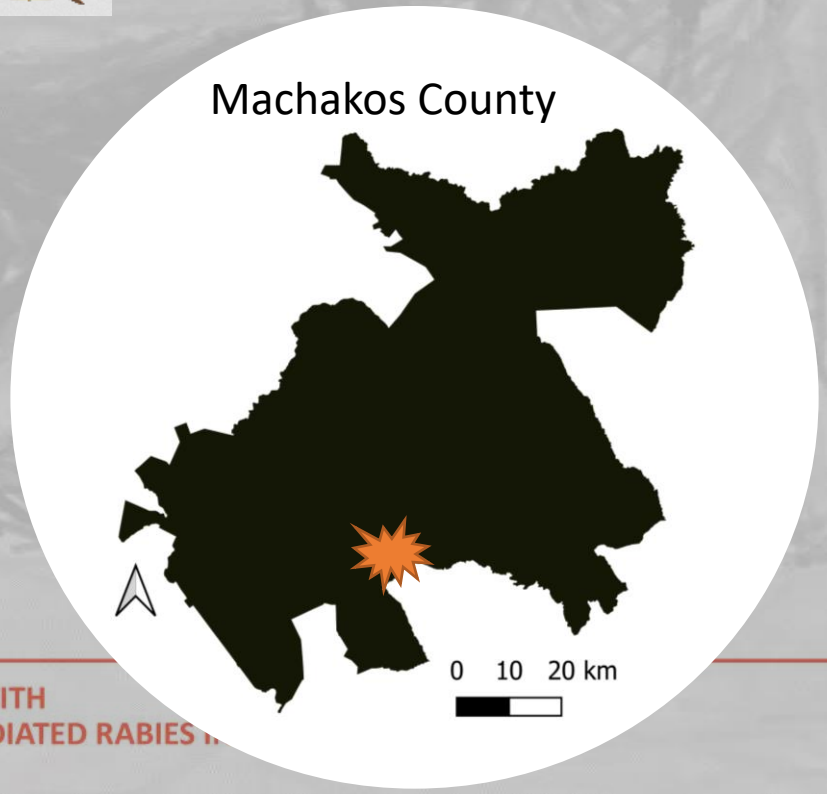
Mass dog vaccination campaign

KIMWE KIYUAA KYAA NDAA

Vétérinaires Sans Frontières Germany



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Case example: Cost of vaccination

Data sources:

- Financial expenditure reports from Machakos rabies vaccination campaigns (2021–2024)
- Primary cost categories: coordination, vaccines, personnel, transport, supplies

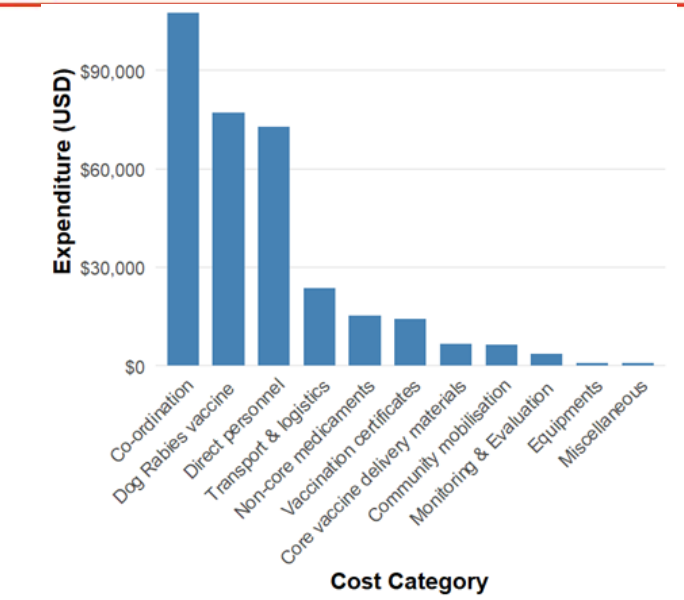
Costing methodology:

- Financial costing from the implementer's perspective
- Monte Carlo simulations to model uncertainty
- Scenario analyses to explore impact of donated vaccines and operational changes

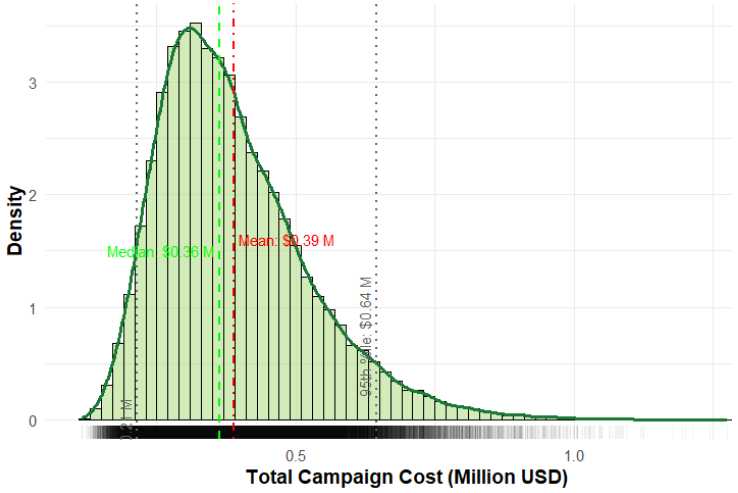
Sensitivity analysis:

- Partial Rank Correlation Coefficient (PRCC) to identify key cost drivers
- Variables assessed: team throughput, transport, personnel costs, vaccine wastage

Case study: cost of vaccination

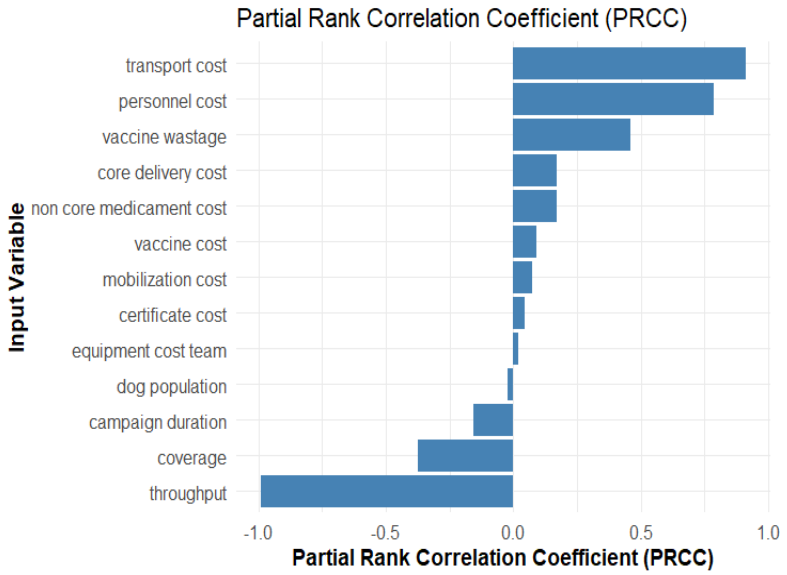


- Total campaign cost (2021–2024): KES 42.3 million (USD 328k); average cost per dog: KES 311 **(USD 2.41):** (136,143)
- Major cost drivers: Coordination, vaccines, and personnel.



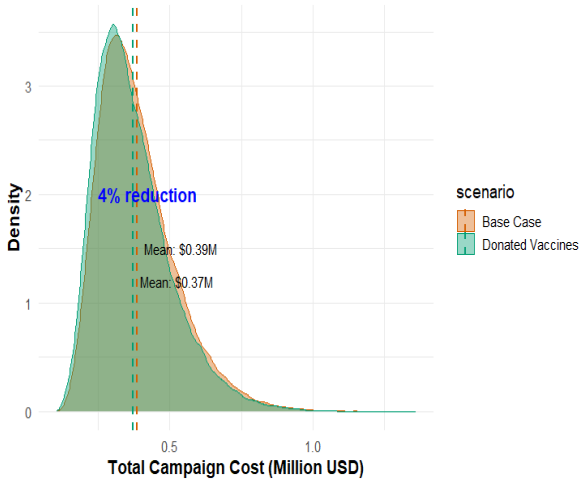
- Total cost 46.44 million KES (95% UI: 29.67 – 82.56 million KES)
- Median cost per dog: KES 189.5 (USD 1.46).

Case study: cost of vaccination

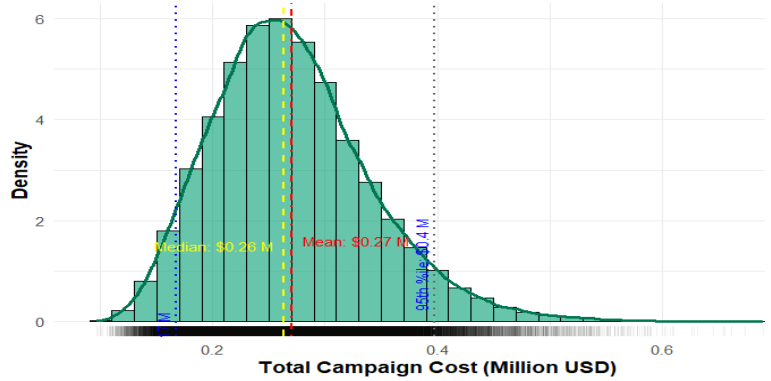


- Sensitivity analysis shows that team throughput, transport, and personnel costs most influence the cost per dog
- The biggest way to keep vaccination affordable is to make sure each team vaccinates many dogs each day.
- High team productivity is the strongest cost-saver.
- On the other hand, rising transport and personnel expenses quickly push costs up.
- Productivity is the biggest driver of affordable dog vaccination

Case study: Cost of vaccination

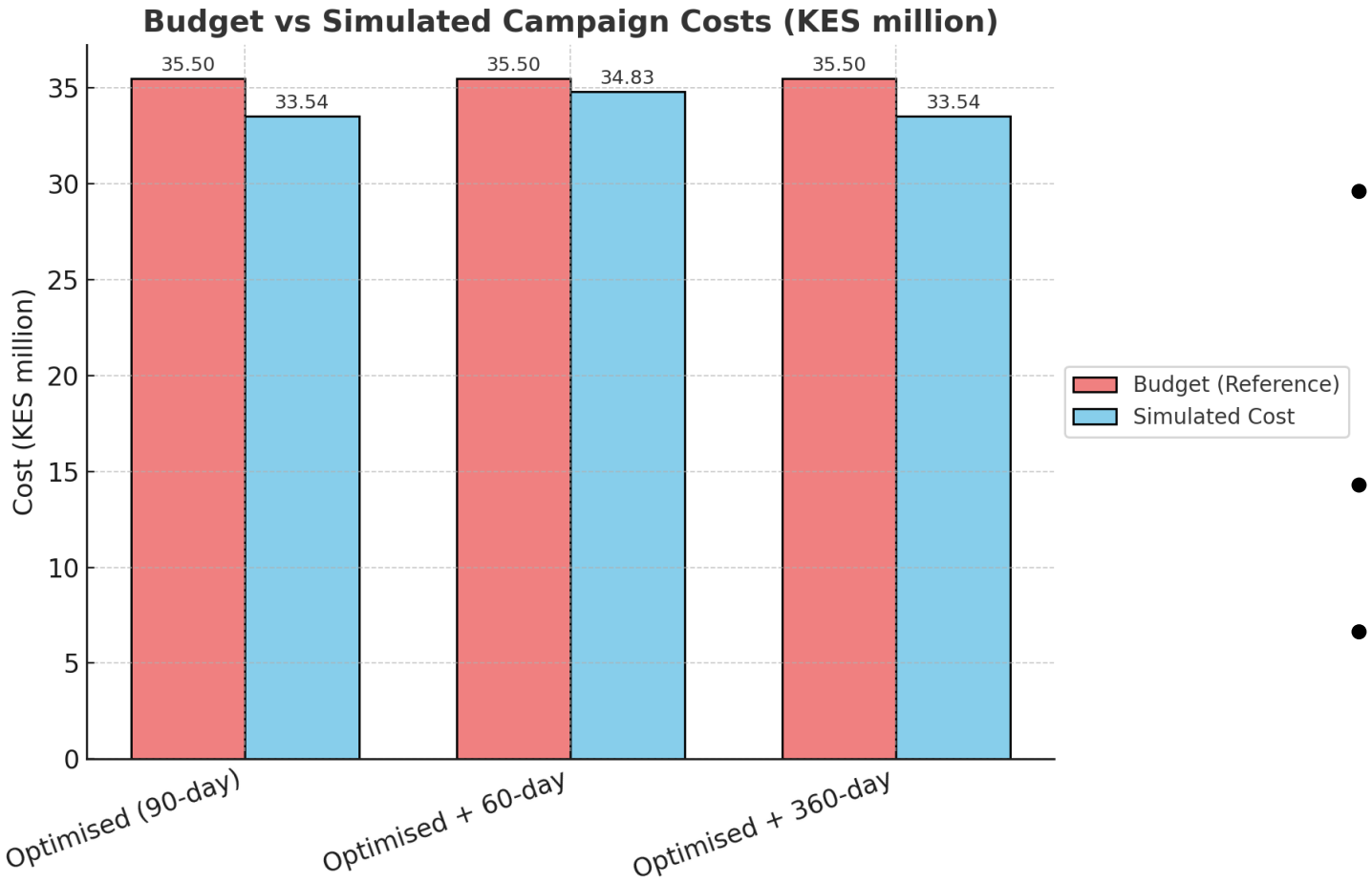


Donated vaccines reduce total cost by ~4%.



- A throughput of 40–100 dogs/team/day (mean = 80)
- A 90-day campaign duration
- Vaccine wastage of 6%
- Optimised campaign scenarios show potential cost savings and operational efficiencies.
- But: You need an average of 39 teams (24-59)

Cost of vaccination



- County budget for 2025/2026: vet department: 35.5 million: Capital and recurrent
- Not enough?
- What can we do?

Discussion and implication

Vaccination economics: Campaign cost-effective but still exceeds local veterinary budgets; operational efficiency and strategic planning essential

Policy and practice: Need for evidence-based advocacy, innovative financing, and tailored, spatially aware intervention strategies

- Public private partenships
- Bonds

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UNIVERSITY OF LIVERPOOL

Vétérinaires Sans Frontières Germany

KYAA KIMWE KIYUAA NDAA

OHRECA
One Health Centre in Africa

ILRI
INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

CGIAR

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