



Dog Rabies Vaccination Campaign in Bo, Sierra Leone

28th May to 6th June 2024

Summary Report

28th August 2024

Partners Involved

Njala University, Njala Campus
Sierra Leone Ministry of Agriculture and Forestry (MAF)
Mission Rabies
Compassionate Paws International
Bo District Livestock Office
Bo One Health team
Bo City Council

Photos and videos of the project - [click this link to view](#)

Introduction:

Rabies is a deadly zoonotic disease that affects humans and animals, transmitted primarily through the bite of infected dogs. Rabies is endemic in Sierra Leone, where there are significant challenges in controlling rabies due to a lack of consistent, fully resourced and comprehensive vaccination programs. In response to this pressing public health issue, we proposed a dog rabies vaccination campaign, employing a One Health approach to bring together resources from the human, animal, and environmental health sectors, at the community, local and national level.

The city of Bo has been highlighted as being in need of [targeted rabies interventions \(Mshelbwala et al., 2024\)](#) and its proximity to Njala University where Sierra Leone's Animal Science and Paravet courses are run, made it a desirable location.

Objectives:

- To vaccinate at least 70% of the dog population in selected areas of Bo.
- To raise awareness among community members about rabies prevention and the importance of responsible pet ownership through educational campaigns.
- To strengthen collaboration between veterinary, public health, and community stakeholders to promote sustainable rabies control efforts.

Summary of Outputs:

1. A total of 4936 dogs were vaccinated across the Northern and Central portion of Bo.
2. The average coverage rate was recorded to be 83.45% - meeting the required threshold for herd immunity of 70%.
3. 1849 people received information on rabies from mobilisers: 1079 adults and 779 children
4. 2707 students received a rabies lesson over the vaccination period via school assemblies or class lessons.

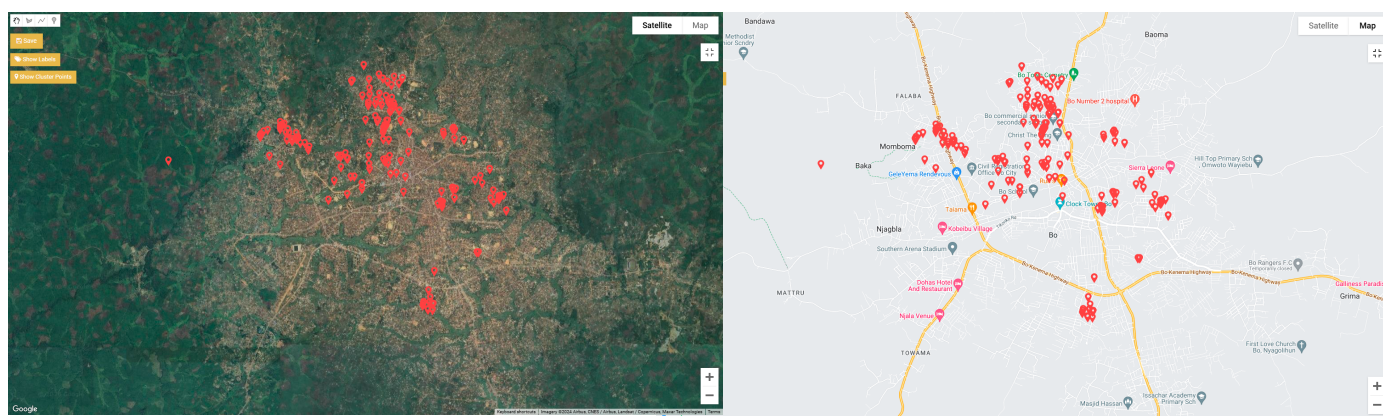
Methodology:

The following methods were employed:

Community Engagement: A training session on rabies was delivered to 12 teachers and 20 community mobilisers on May 22nd. The trainer, CPI's Programme Coordinator, Alie Turay, a former teacher, had been trained by Mission Rabies using a 'train-the-trainer' approach. After the training session, two Mission Rabies lesson plans were disseminated to teachers to provide rabies education in their schools, either through individual classes or assemblies.

After the training, community mobilisers were deployed in their home areas to sensitise their communities. Their interactions included house-to-house conversations and community gatherings.

Mobilisers were asked to record their activities in the WVS app. Each entry was geo-tagged (see maps below (**below left** - *satellite view*; **right** - *map view*). In total, the 20 mobilisers made 190 entries into the app and reported to have reached a total of 1849 people: 1079 adults and 779 children. This was mostly achieved by going house-to-house, community-to-community.



Of the teachers, four teachers in four different schools gave a total of 6 lessons using the Mission Rabies lesson plans provided. Students were encouraged to bring their dogs for vaccination. The four teachers reported a total of 2707 students having received the lessons over the vaccination period, via four school assemblies and two individual classes.

Vaccination Drive:

5000 doses of canine rabies vaccine were donated by Mission Rabies, with 4936 dogs being vaccinated in total. Initially, static points were set up in strategic locations, however, there was a limited uptake in most locations, leading to vaccination teams taking up a mixture of roaming static points and door-to-door approaches after the first few hours from commencement.

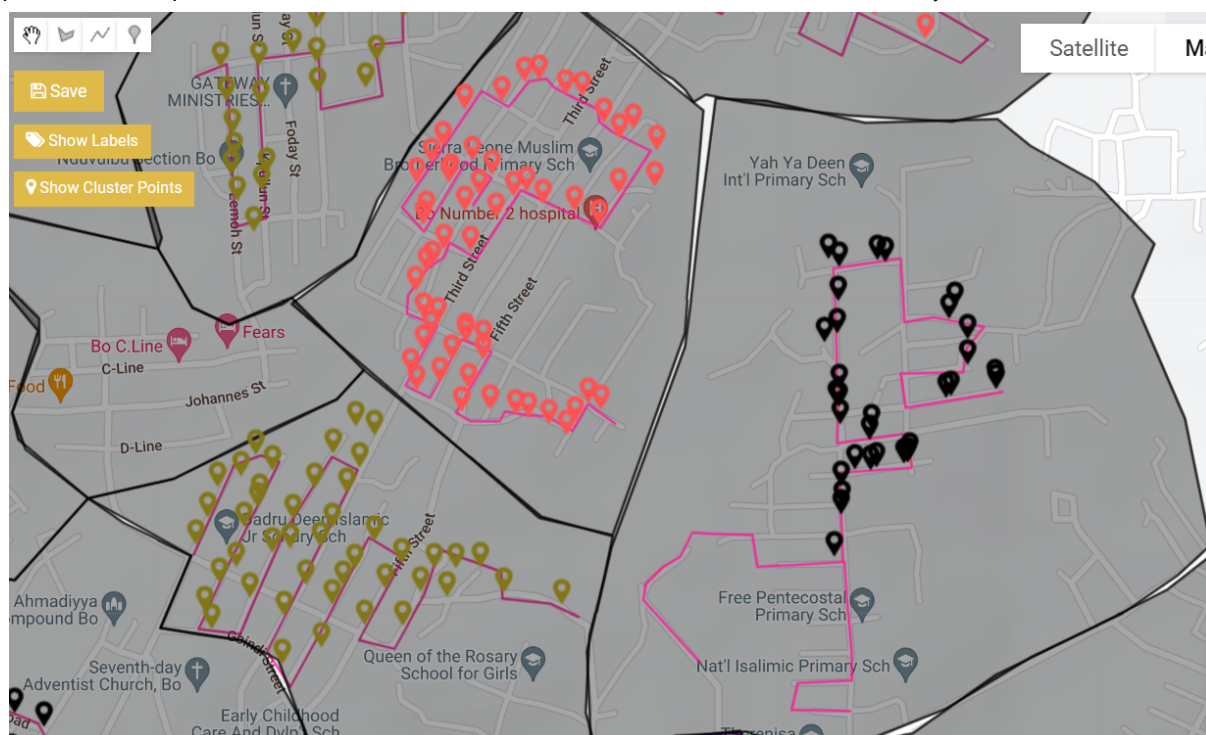
Eight vaccination teams, consisting of four people each, were deployed to key locations around Bo, starting in the North-West and moving Eastwards over 8.5 days. Vaccination teams consisted of Paravet students and Masters in Animal Sciences students from Njala University, and Bo livestock office staff. Locations were communicated using WhatsApp and the WVS app. Vaccination teams were able to track their location and movements throughout the day using a 'pathtracker' mechanism within the WVS app - allowing them to see if they had covered most of their allocated area.



LEFT: Red line shows an **example** of the 'pathtracker' - the route that a vaccination team covered. Their assigned areas were coloured in and numbered, while unassigned areas remained grey, so that teams could see the boundaries of where they needed to be. Each team was assigned different numbered and coloured areas. The blue dot was their present location when sharing this image. This image is viewable by the vaccination teams themselves on their phones, and can be shared at any time with the project manager, to assess the route that teams have walked.

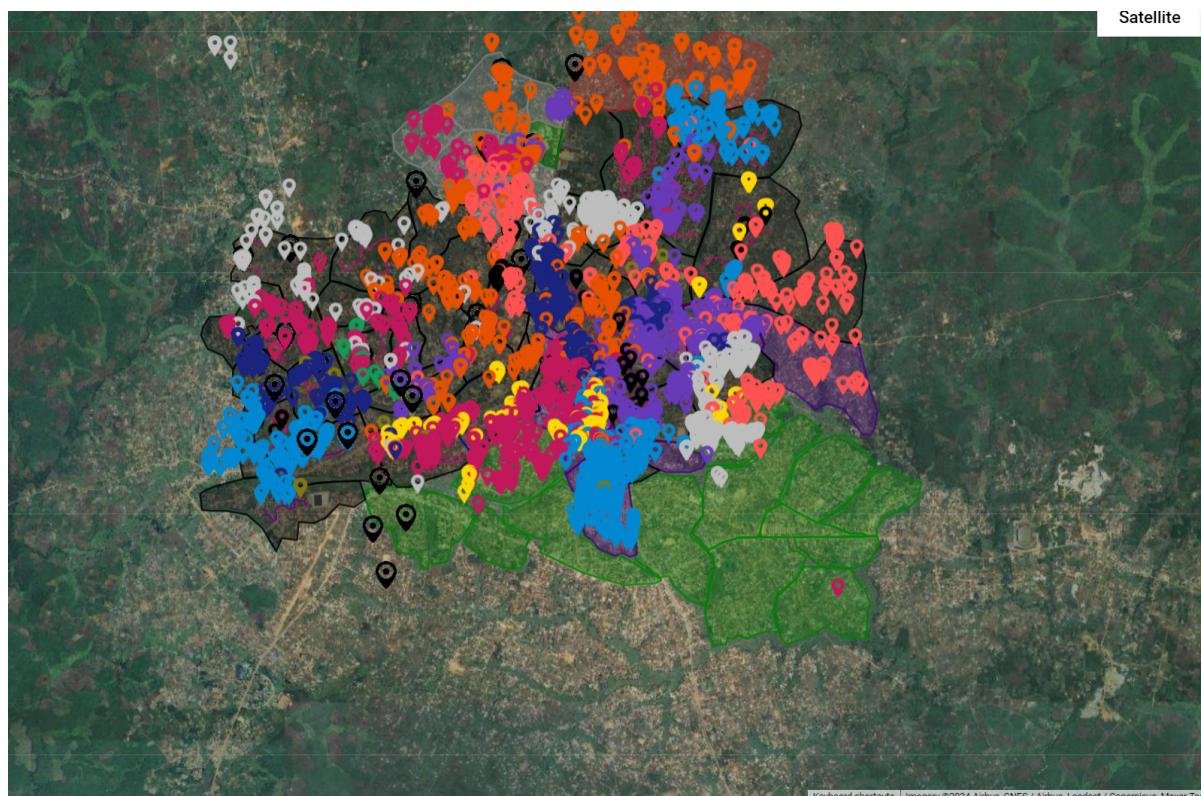
Data Collection and Monitoring: Each vaccination was recorded inside the wvs app. Information on age, sex and ownership status of every vaccinated dog was recorded along with the GPS location. Post-vaccination household surveys were carried out 1-3 days after vaccination in randomly selected areas. Surveyors were assigned a transect line and surveyed every third house, regardless of whether there were dogs in the household. The principle aim of the post-vaccination surveys was to determine whether at least 70% of all dogs had been vaccinated. Household surveys were chosen over a resight survey for this as it was known that the majority of roaming dogs are owned.

BELOW: GPS points of completed household surveys showing the 1-in-3-household pattern of surveying. The different colours were allocated to different surveyors. The pink lines represent the transects that were allocated to the surveyors.



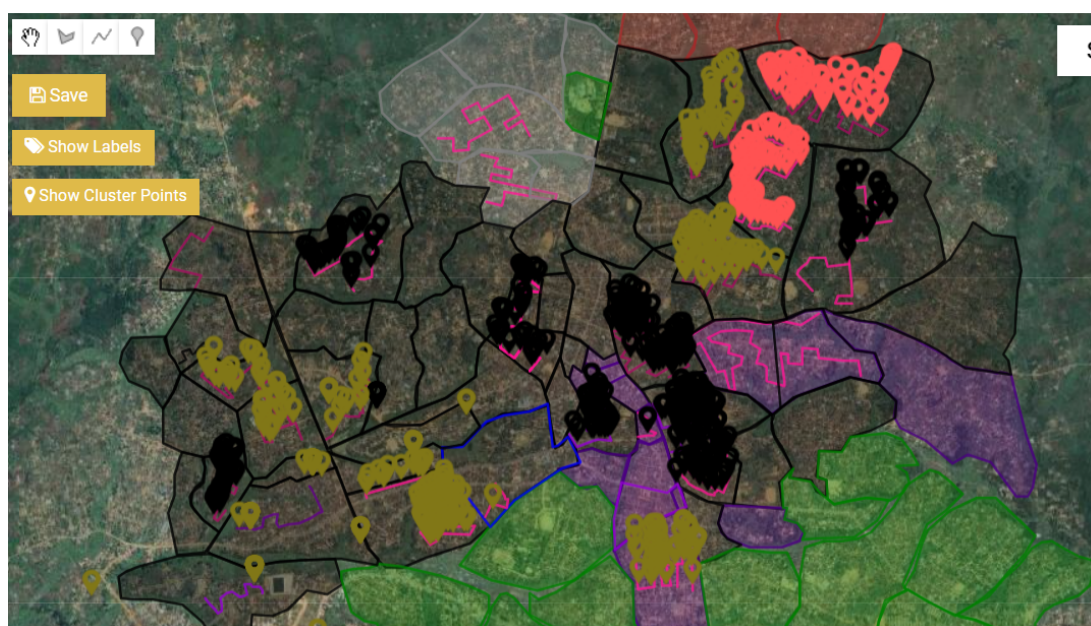
One Health Integration: Representatives from across the One Health sphere came together to jointly implement this project. Vaccination teams and mobilisers were supervised by Bo's Chief Livestock Officer, the Health Education team in Bo, Mission Rabies and Compassionate Paws.

BELOW: Satellite map of the entire Bo city. One pin represents the GPS location of each dog vaccinated. A different colour was allocated to each of the 8 teams.



Of the 61 areas where dogs were vaccinated, 19 were randomly surveyed afterwards, with 570 households completing the surveys. The preliminary results show an average coverage rate of 83.45% in these randomly selected areas.

Below: *The coloured pins show the exact GPS location of every household surveyed. Surveyors worked in pairs and there were three pairs in total, representing 3 colours.*



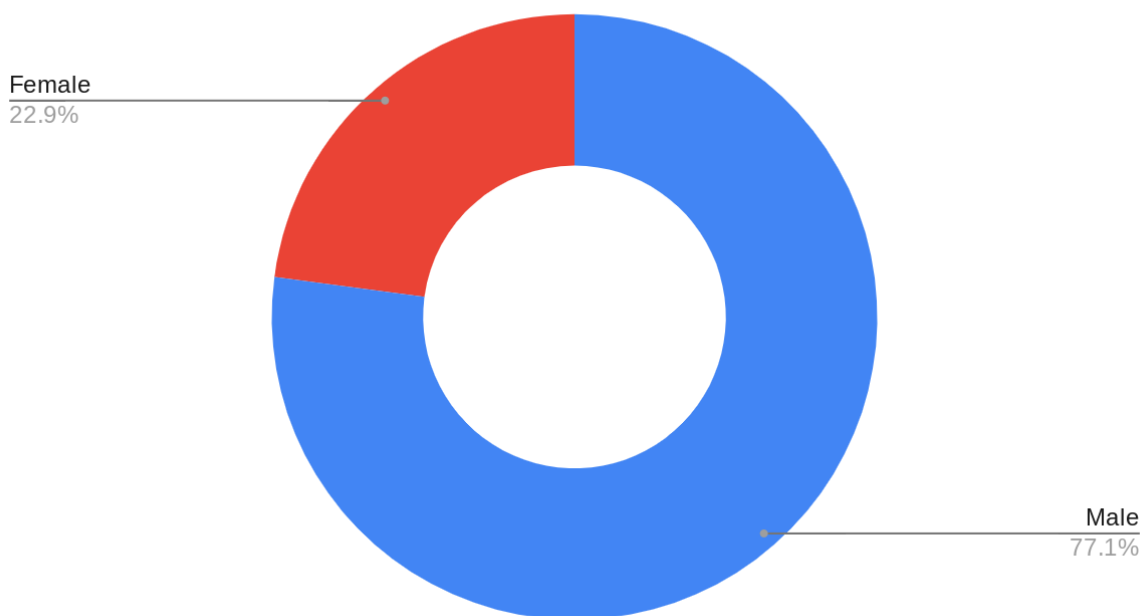
Data Results on Dog Demographics:

Of the 4936 dogs vaccinated:

1. There was a male: female ratio of 3.37 : 1

This is a higher ratio than recorded in Freetown but is consistent with previous research showing that females are far more likely than males to be abandoned or killed because of their reproductive capacity.

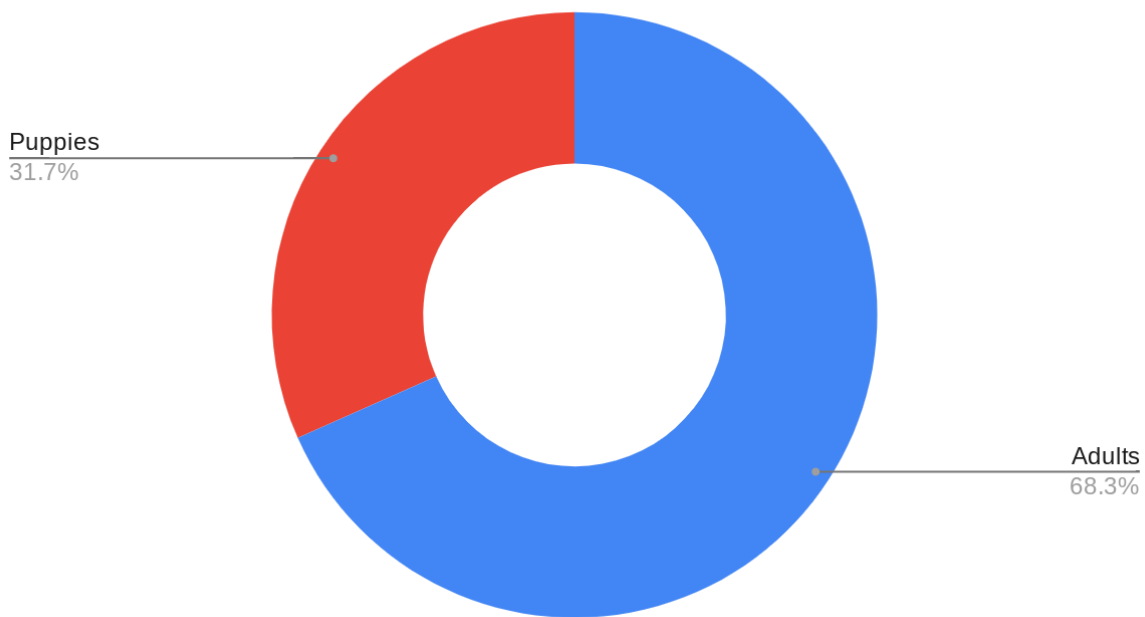
Female vs Male



2. Of all dogs vaccinated, 31.7% were puppies under 3 months

It is positive that people had no objections to puppies being vaccinated, however, the immunity of puppies cannot be guaranteed with only one vaccination. Furthermore, survival rates of puppies tend to be low, therefore the lasting impact of these vaccinations is uncertain. CPI has observed that there may be times of year where there is an increase in puppies being born compared to other times of year. Further data is needed on this, as this could affect the planning of future interventions.

Puppies vs Adults



3. Of the adult females, 39% were recorded to be lactating.

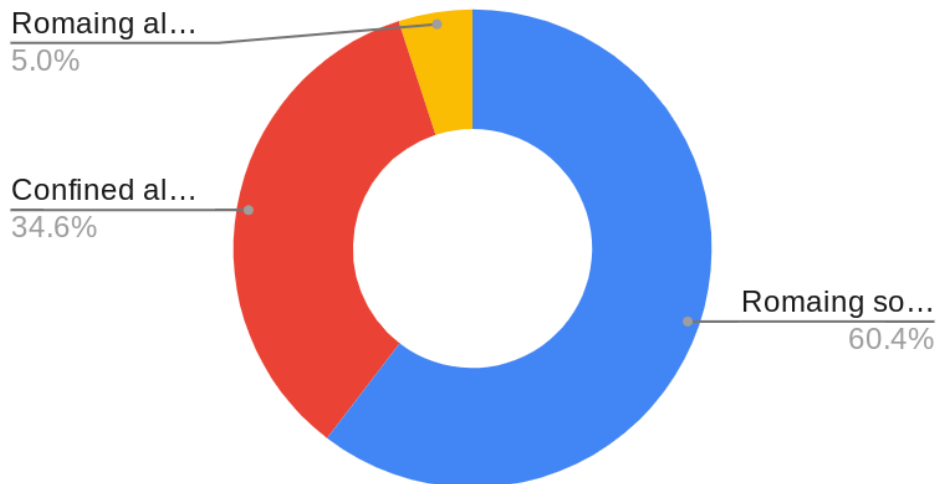
Of the 216 *dog-owning* households that were surveyed during the post-vaccination surveys:

4. The mean average number of dogs per dog-owning household is 2.6 dogs

5. 64.4% of dogs are roaming either “always” or “sometimes”. 34.6% were recorded to be “confined always.”

This is a lower percentage of roaming dogs than was expected, based on previous CPI data in Freetown. It is possible that there is a barrier to people reporting this indicator accurately because roaming dogs can be considered to be a nuisance. However, it was observed by team members that there did appear to be less roaming dogs in Bo than in Freetown.

Confinement of Adult Dogs



Of all the households surveyed during the post-vaccination surveys:

6. The average household size was 12.2 people:

Number of households surveyed	Total # Adults	Mean # Adults/house	Total #Children	Mean # Children/house	Total number of people in households surveyed
570	5259	5.7	3703	6.5	8962

In the first instance, some of the surveyors did not understand the instruction to survey every third house (regardless of dog ownership), and instead, surveyed dog-owning households only, rendering some of the data unusable for calculating human:dog ratio.

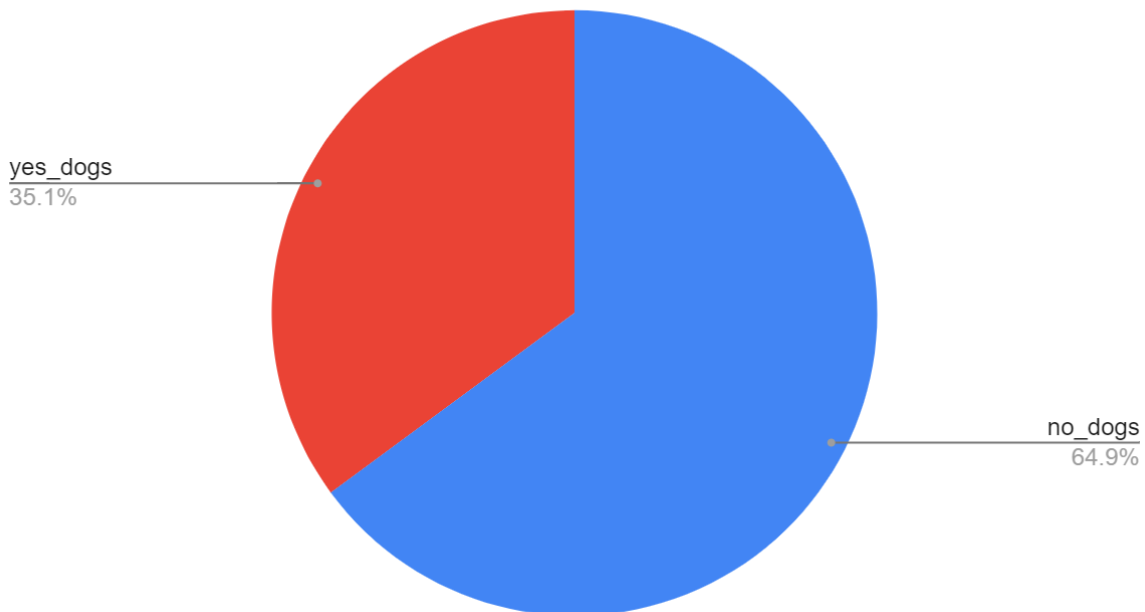
Therefore a sample of correctly surveyed data from 8 different areas across the West, North and East of Bo was taken:

SAMPLE OF DOG OWNING AND NON-DOG OWNING SURVEYED HOUSEHOLDS:									
Number of households surveyed in sample	Total # Adults	Mean # Adults/house	Total #Children	Mean # Children/house	Total number of people in households surveyed	Total adult dogs	Total puppies	Total dogs	Human : Dog Ratio
263	1530	5.88	1641	6.3	3171	126	113	239	13 : 1

7. Of the sample of 263 households, **35% owned a dog**.

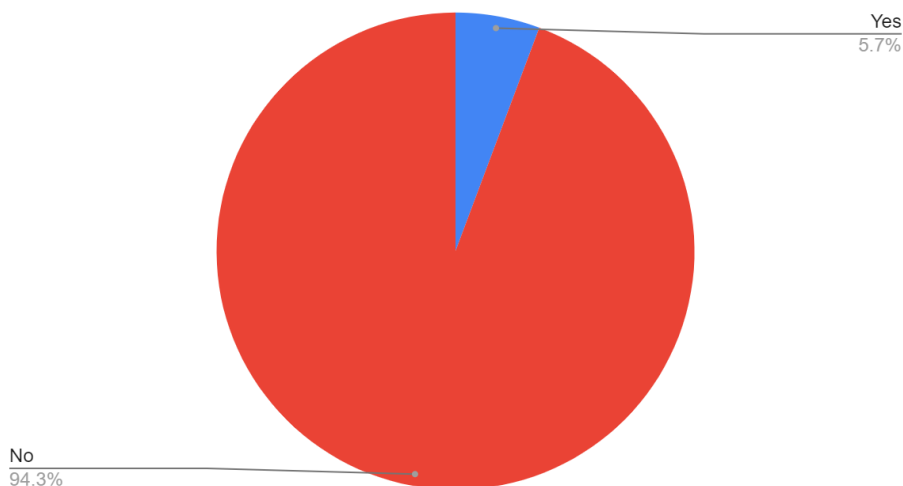
8. Of the sample of 263 households, **the human:dog ratio was 13:1**. This is consistent with research previously carried out in Freetown by CPI, and also by Prof. Roland Suluku in other parts of Sierra Leone.

Proportion of Households with Dogs



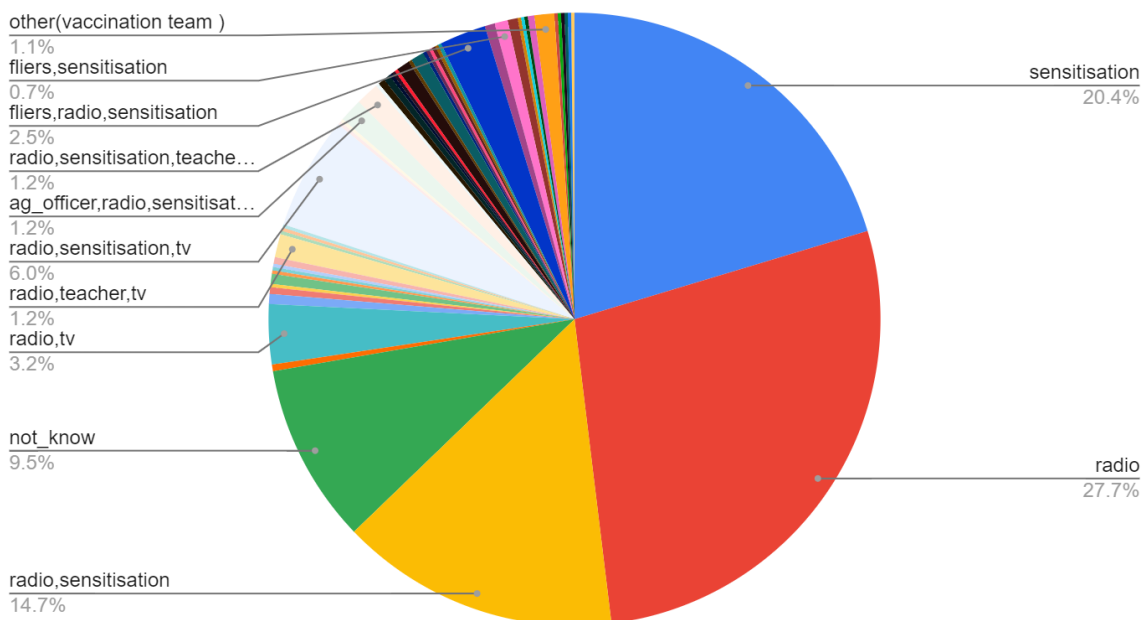
9. **30 out of 526 households reported a dog bite in the last year, representing 6%.** Assuming that rabies is endemic in the area, this figure demonstrates that there is a tangible risk of rabies.

Households Reporting Dog Bite in Last Year



10. Of all households surveyed, 90.5% had heard of the rabies vaccination campaign. Radio was the most effective sensitisation method, followed by the mobiliser (sensitization) personnel.

How Did People Hear About the Campaign



Strengths & Challenges Observed

Strengths

- Skilled and motivated vaccination teams
- Motivated and very helpful stakeholders across One Health sector in Bo
- Successful sensitisation
- Good uptake among dog owners

Challenges

- No formal procedure in place had the teams come across a suspected rabies case in a dog
- Rabies PEP is only available in Freetown and expensive
- Vaccination teams and surveyors took several days to learn mapping skills
- Poor internet led to difficulty in preparing maps ahead of each day
- Reliance on personal phones of team members - some had GPS not working well. Heavy use of phone caused one personal phone to break during week.
- Reliance on CPI to fill supervisory role



- Reliance on a project manager with full proficiency in mapping skills
- Difficulty in communicating exact locations to community mobilisers who did not have map-reading skills.

Action Points for Future Mission Rabies Vaccination Projects in Sierra Leone

- Create a strategy for scaling this project - consider further opportunities to collaborate with Njala University and its students and elect available and skilled supervisors.
- Include training on mapping in training day (using GPS tracker, advantages of satellite view / map view, and sharing location in WhatsApp).
- Provide mobile phones for teams rather than rely on people to provide own

Total Spend

- The total project spend was \$12,170.