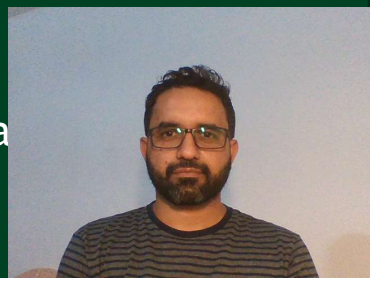
HUMANE SOCIETY INTERNATIONAL

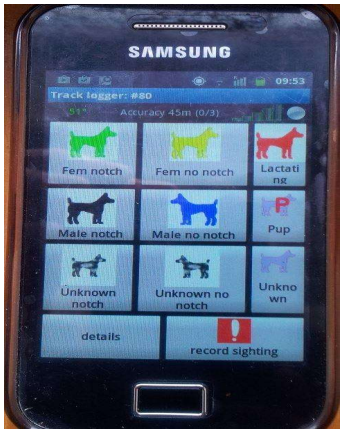
Free Roaming Dog Population Estimates using mobile phones – street length method

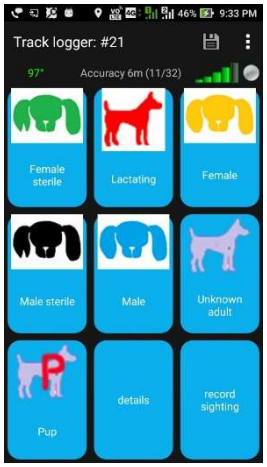
Dr Amit Chaudhari , Director MEIA, Humane Society Internationa



What is the street count methodology?

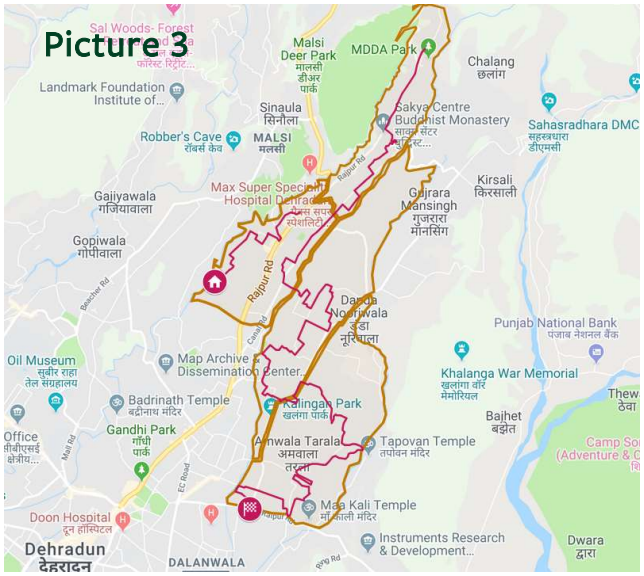
To generate an estimate of dogs per street kilometre create set routes, also called index or standard routes, in Google Maps along residential roads and highways but avoiding expressways (dogs tend to avoid these roads). For easy access, the routes are saved as KML files and stored in Google My Places, which can be accessed from smartphones (online and offline). A survey team, consisting of a driver and an observer on a motorcycle, conducted the surveys early in the morning starting at dawn. The observer used both the Google Maps app and the OSM Tracker app on a cell phone.





Picture 1 and 2

Picture 3



What is the principal behind it and how effective it is comparatively?

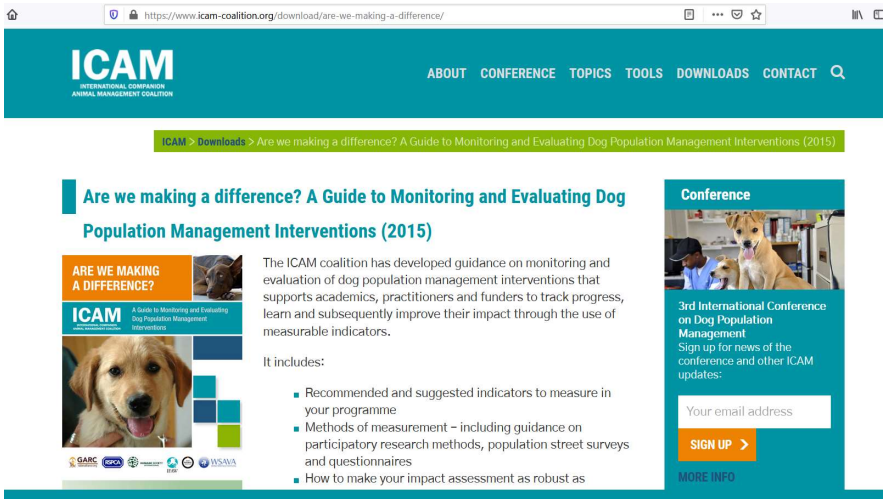
- It is a direct observation of the dogs on the street – An observer sitting on a motorbike or car – Following a pre defined routes on a Google Map.
- Observing dogs on the street during early morning hours (to avoid traffic), one could get the dogs per km for different areas of the city.
- Extrapolating dogs per km to total street length of different areas of the city will give dog population estimates for entire city or an area.
- **Detectability -** we don't see all the dogs living on the street and to correct that we do an experiment either using Photo method or spraying temporary paint on the dog and allow them to get mixed for a day or so – take sample/s from the same street and compare dogs previously.

What is the principal behind it and how effective it is comparatively?

- It a published methodology and accepted by the ICAM (ICAM - International companion animals' management coalition)

Publication - Elly Hiby, Lex Hiby - Direct Observation of Dog Density and Composition during Street Counts as a Resource Efficient Method of Measuring Variation in Roaming Dog Populations over Time and between Locations *Animals* **2017**, *7*(8), 57; https://doi.org/10.3390/ani7080057

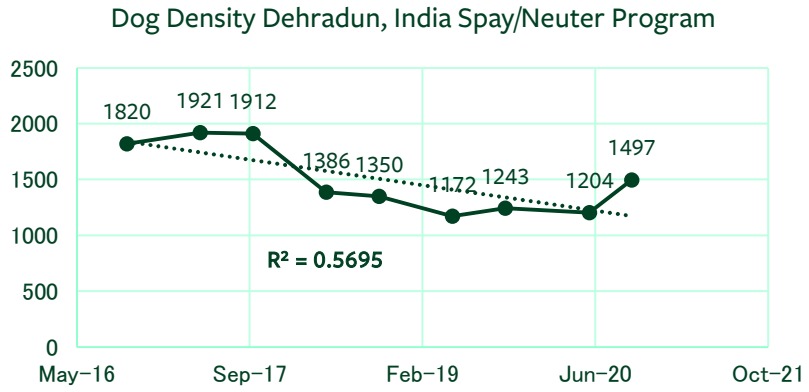
Under publication – Tamara Kartal, Amit Chaudhari – Dog demographics and dog ecology across India, Humane Society International, 2021

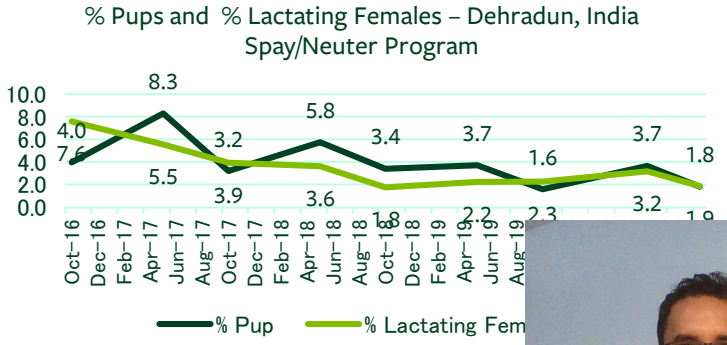


OIE – Guideline for stary dog population control – Chapter 7.7 (7.7.8) still refers to the old guidelines – scope for advancement here

What is the principal behind it and how effective it is comparatively?

- ✓ A quick way to establish a baseline in different areas if the city/region/state and use baseline for future comparison
- ✓ GPS tagged data, Google navigation and established protocol – Humane Society International has conducted several survey in Asia, Africa and South American countries.
- ✓ We are using these protocols to monitor all HSI spay/neuter program twice a year.





Detectability

What percentage of dogs are visible on the street using motorbike counting methodology?

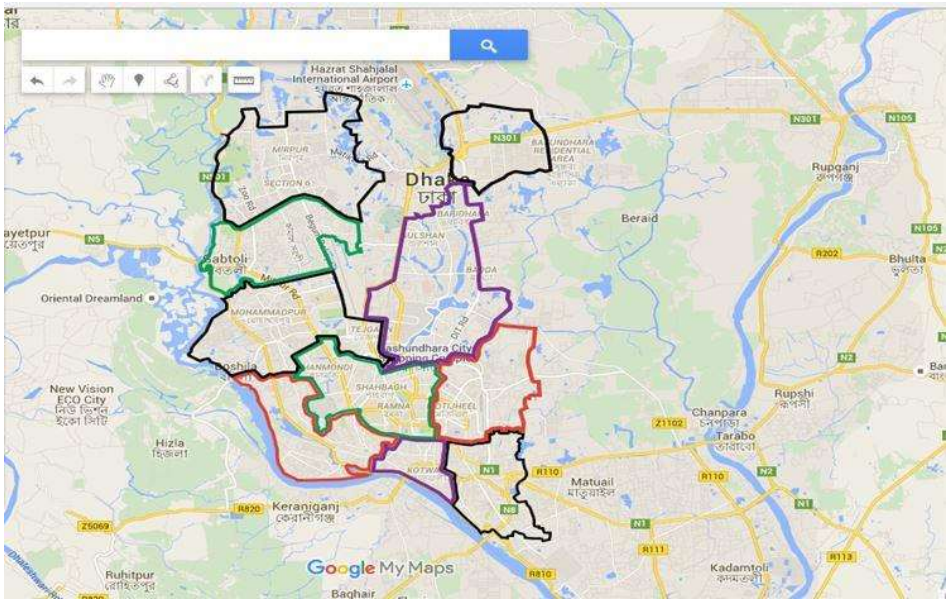
- In Kathmandu, Mumbai and Lucknow we conducted Detectability experiments
- Dogs were marked with temporary colour on in sleeted wards in serval rounds and on all the possible roads
- Resighting was done on all the possible roads of the wards on following days

Ward	Marked	Resight Marked	Resight Non-Marked	Detectability	Population Estimate	CV
1	58	27	29	0.47	120	0.10
12	186	74	147	0.40	553	0.07
15	214	95	160	0.44	573	0.06
22	63	33	24	0.52	109	0.07

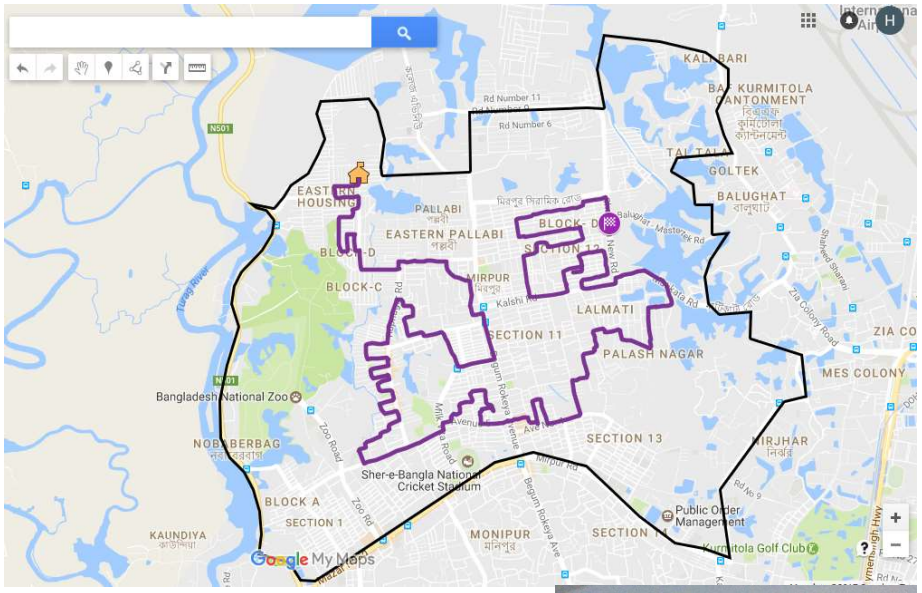
Table 1- Data from Kathmandu Detectability experiment

How to prepare and use this methodology?

Picture 4



Picture 5



Picture -4 shows Dhaka city Zone boundaries

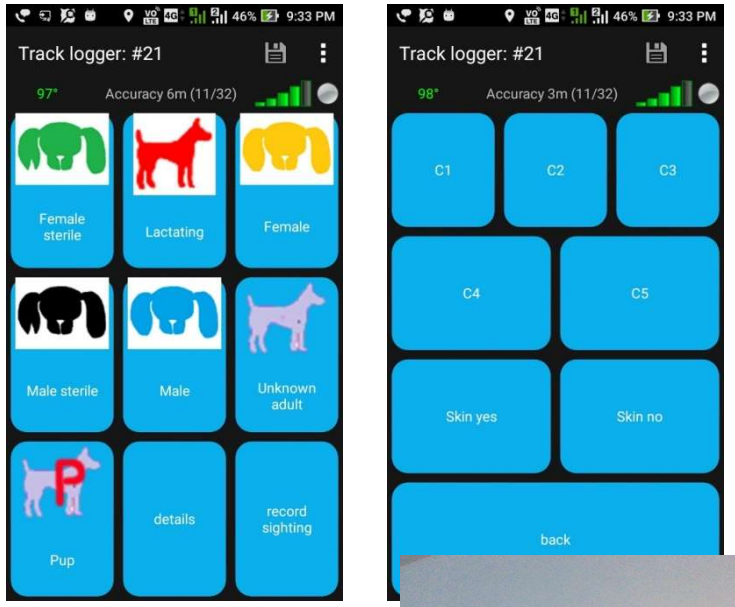
Picture -5 Shows Dog counting routes drawn randomly (approx. covers 10% of the area roads

How to prepare and use this methodology?

Mobile Phone Applications

Google Map

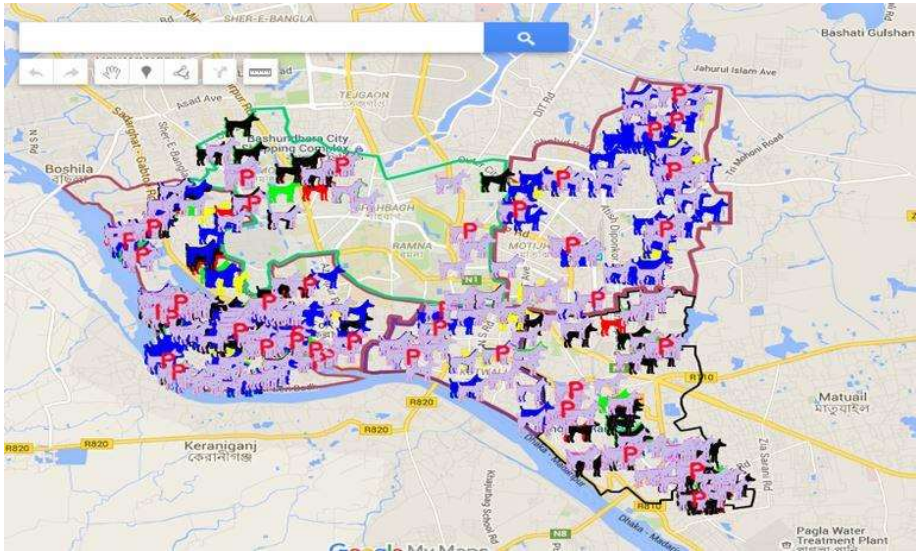
OSM Tracker*

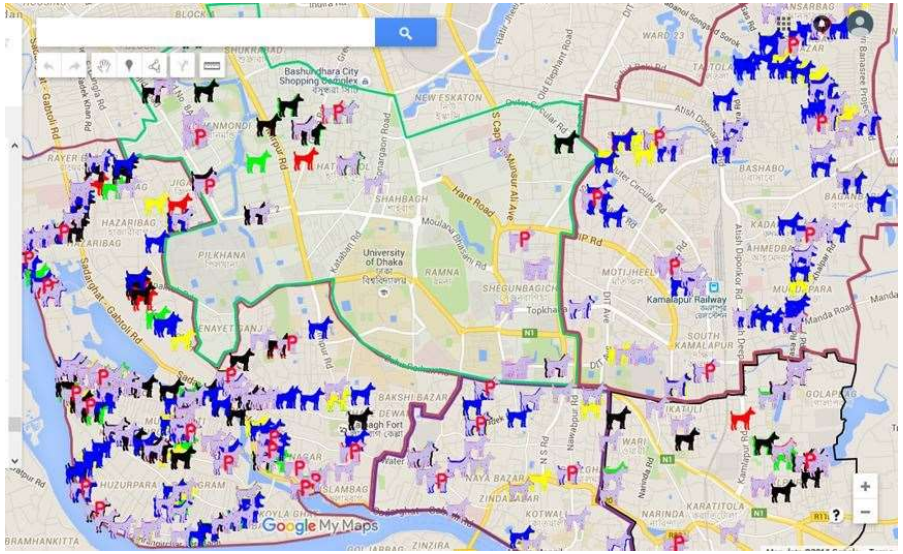


Mobile phone Showing OSM trac

* OSM tracker (Open-Source Map) application needs additional layout folders to use it for street count surv

How to prepare and use this methodology?





Next slide is a short video shows the data collection methodology

Timeline and Resources requirement

For metro cities like Delhi, Kathmandu, Dhaka, Thimphu

(we have already conducted surveys for these cities)

Survey design, pre survey data, preparing Google maps – One week

Team size – Team of six motorbike rider and six surveyor (seating back on the motorbike)

Motorbikes – Six

Training survey team and standardization of survey protocol – Two days

Number of days (early morning 5:30 to 7:30) – One week

Owned dog population in SAARC countries

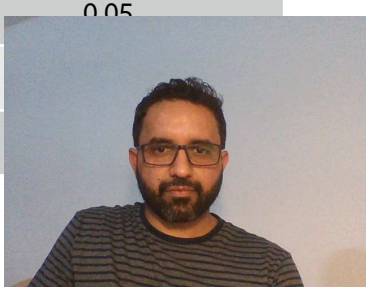
It is a common belief that there are very few pets in SAARC countries and that some times leads to less effective program implementation.

- Our data suggests (From India and Bhutan) there are considerably high pet population.

Area	% Households owning dogs	Private dog sterilization rates
Thimphu City	15.10%	32.95%
Paro City	12.41%	56.52%
Paro Suburban	24.03%	36.36%
Paro Suburban	26.56%	52.27%
Thimphu and Paro- Rural	43.10%	37.62%

Owned dog population in SAARC countries

Indian City (survey year)	Human Population Source	Private dogs per 1000 humans	% Dog owning households	Dogs per household
Coimbatore (2018)	2017 estimate*	43.4	20.14	0.29
Kodaikanal (2017)	2011 census	70.8	24.12	0.27
Mussoorie (2017)	2011 census	30.7	14.33	0.15
Nainital (2017)	2011 census	45.4	21.8	0.23
Jamnagar (2017)	2011 census	9.4	4.64	0.05
Vadodara (2017)	2011 census	13.1	5.53	
Ahmedabad (2019)	2019 estimate*	5.8	2.33	



Observations..

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Thank you!

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