

# An engagement and advocacy lesson for rabies prevention: Singapore's Trap-Neuter-Rehome/Release-Manage Programme (TNRM) and mass rabies vaccination

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## INTRODUCTION

- Singapore has been free from rabies since 1953. However, the possibility of illegal entry of infected animals continues to pose a biosecurity threat.
- Free-roaming dogs (FRDs), and owned dogs at coastal fish farms and outlying islands are assessed to be at higher risk of exposure to rabies should there be an incursion into Singapore.
- This poster describes the engagement and advocacy approach for national rabies prevention programmes for these two high-risk dog populations.

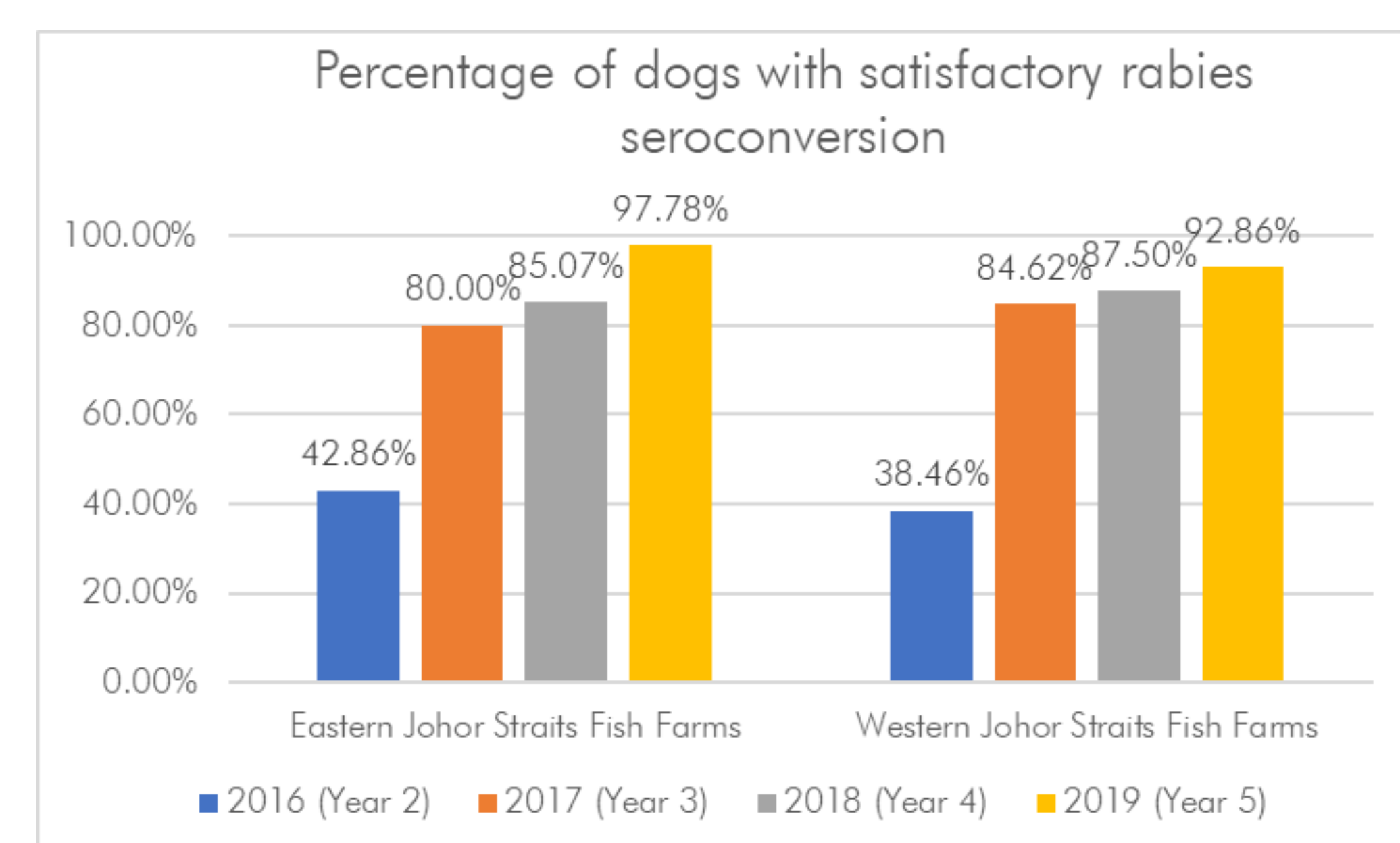
## SINGAPORE'S APPROACH TO RABIES PREVENTION

- A 5-year **Trap-Neuter-Rehome/Release-Manage (TNRM) programme** was launched in 2018 to sustainably reduce the FRD population in Singapore. FRDs are trapped, sterilised, and rehomed or released into the environment.
- The **annual rabies vaccination programme for dogs at coastal fish farms and offshore islands ("Ops Vax Lyssa")** started in 2015 to ensure adequate herd immunity. Dogs are vaccinated and licensed, and booster shots are repeated. Serological screening started in 2016.
- The following principles have been identified to be critical in both programmes:

<b>1</b>	<b>Strong political will, advocacy and funding</b>	<ul style="list-style-type: none"> <li>• Both programmes received strong support from political office holders and are <b>fully funded using public resources</b>.</li> </ul>
<b>2</b>	<b>Establish clear, relevant, realistic and science-based objectives</b>	<ul style="list-style-type: none"> <li>• For TNRM, year-to-year KPIs were outlined to <b>sterilise at least 70% of FRDs</b> by the end of the project.</li> <li>• Vaccination at coastal fish farms targeted to <b>achieve at least 70% seroconversion in resident dogs</b> and ensure <b>traceability of all dogs</b>.</li> </ul>
<b>3</b>	<b>Determine key stakeholders and partners</b>	<ul style="list-style-type: none"> <li>• <b>Animal welfare groups (AWGs), veterinary profession and community animal caregivers</b> were actively engaged for TNRM. The Society for the Prevention of Cruelty to Animals is the lead AWG working with the other nine AWGs to coordinate operations across various geographic areas with the government (NParks).</li> <li>• <b>Private veterinarians and students</b> were enlisted as volunteers in the vaccination exercises, with good participation rates.</li> </ul>
<b>4</b>	<b>Develop a roadmap with key milestones and an operations plan</b>	<ul style="list-style-type: none"> <li>• NParks worked closely with animal welfare groups to develop <b>operational workflows for the management of FRDs</b>.</li> <li>• <b>Rehoming efforts were strengthened</b> through Project ADORE (ADOption and Rehoming of Dogs) to facilitate the rehoming of local mixed breed dogs to public housing. To date, about <b>3,500 dogs have been enrolled in the TNRM programme, with more than 60% rehomed or fostered</b>.</li> </ul>
<b>5</b>	<b>Awareness building and education</b>	<ul style="list-style-type: none"> <li>• FAO ECTAD was engaged to <b>upskill key TNRM partners</b> on humane handling and trapping of FRDs in 2017. An <b>animal management certification programme was later developed</b> to equip the local industry with knowledge and skills to perform their work.</li> <li>• During the vaccination exercises, outreach and education were conducted for fish farmers and villagers to <b>promote awareness on rabies</b>.</li> </ul>
<b>6</b>	<b>Celebrate early successes and project achievements</b>	<ul style="list-style-type: none"> <li>• NParks <b>engages key TNRM partners regularly to update on the project progress</b> and plan next steps. Early successes in coastal fish farms vaccination exercise allowed the project to be <b>expanded to outlying islands</b> in 2018.</li> </ul>



The **Trap-Neuter-Rehome/Release-Manage (TNRM) programme** requires close engagement with different stakeholders. Clockwise from top left: 1 and 2) TNRM Workshop with animal welfare group (AWG) partners to update on project progress; 3 and 4) SPCA Trapper Training Course for AWGs & Contractors.



Starting from the 2<sup>nd</sup> year of the rabies vaccination exercise (i.e., 2016), a sample of dogs from each fish farm cluster were screened for rabies antibody level using a commercial ELISA kit. A rabies antibody titre of 0.5 IU/ml or greater is considered as adequate response to vaccination. By Year 3, after the first booster had been given in the preceding year, at least 80% of the sampled dogs at the two fish farm clusters had satisfactory seroconversion.

## DISCUSSION AND FUTURE DIRECTIONS

- National rabies prevention programmes require strong political will, continued engagement and trust-building with key stakeholders.
- To maintain herd immunity in the FRD population, future studies may be considered to explore other modes of vaccination (e.g., oral rabies vaccine).
- It would be important to also consider rabies prevention measures for cats in the future given that they are known to be opportunistic hosts in some regional outbreaks.