

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

ORIGINAL APPLICATION NO. 25/2025

IN THE MATTER OF:

YASHWEER SINGH

... APPLICANT

VERSUS

MINISTRY OF HEALTH AND FAMILY WELFARE &

ORS.

...RESPONDENT (S)

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Respondent No. 1 & 2

Through



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Dt-01/05/25

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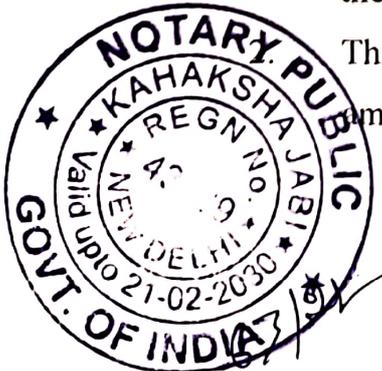
**REPLY BY WAY OF AFFIDAVIT ON BEHALF OF RESPONDENT
NO. 1 MINISTRY OF HEALTH AND FAMILY WELFARE**

Most Respectfully Showeth:

I, Sanjeev Malhotra, aged about 58 years S/o Late Sh. Jagdish Malhotra working as Administrative Officer having Office at NCVBDC, 22-Sham Nath Marg, Delhi – 110054 the deponent herein do hereby solemnly affirm and state on oath as under: -

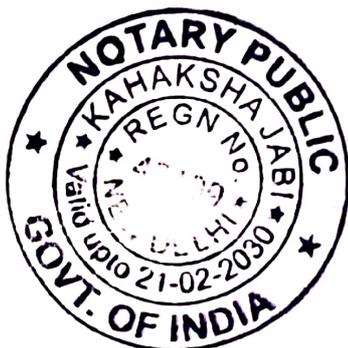
1. That I am competent and authorized by the Competent Authority to swear the present reply by way of affidavit on behalf of Respondent No. 1 i.e. Ministry of Health and Family Welfare and I am aware of the facts and circumstances of the case based on record.

That, I have perused the contents of the above captioned O.A. and I am duly authorized to depose by way of the present affidavit.



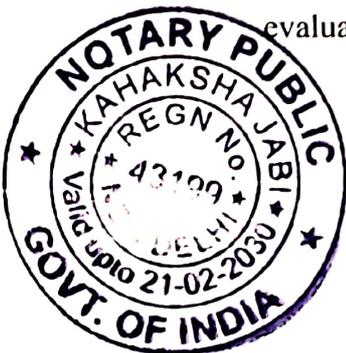
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3. That the answering respondent is not replying to the present application in para-wise manner and craves leave to file a detailed affidavit as and when necessary and required by this Hon'ble Tribunal.
4. That the instant Original Application 25/2025 has been filed by the Applicant alleging his grievances against the release of two highly invasive alien species of fish namely *Gambusia affinis* (Mosquitofish) and *Poecilia reticulata* (Guppy) as biological control agents for control of mosquitos.
5. That the plea of the applicant is that these fishes have been declared as Invasive Alien Species (IAS) by the National Biodiversity Authority and one of them is also listed among the 100 world's worst invasive alien species by the International Union for Conservation of Nature (ICUN).
6. The applicant has alleged his concerns and references reports indicating these species' detrimental ecological impact, including depletion of natural zooplankton, aggression towards native fish, and introduction of parasites. Citing documented cases, such as the decline of indigenous fish populations of *Aplocheilus lineatus* in the Mula and Mutha rivers in Pune, and international bans in countries like Australia and New Zealand, the applicant underscores the environmental risks posed by their continued release. Furthermore, the applicant expresses concern over widespread governmental introductions of these species across India, emphasizing the need for intervention to prevent further ecological damage.



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7. That the Hon'ble Tribunal vide its order dated 24.01.2025 issued notice to the answering respondent and directed to file response/reply by way of affidavit.
8. That it is respectfully submitted that the National Vector Borne Disease Control Programme (NVBDCP), an umbrella programme of Ministry of Health & Family Welfare, Government of India is responsible for prevention and control of six vector borne diseases namely Malaria, Lymphatic Filariasis (LF), Kala-azar, Dengue, Chikungunya and Japanese Encephalitis (JE) in the country. Out of the 6 diseases that NVBDCP deals with, only Kala-azar is transmitted by sand fly. Mosquitos are the vectors for all the other 5 diseases. Three diseases namely Malaria, filaria and kala-azar are targeted for elimination from the Country.
9. That the National Vector Borne Disease Control Programme (NVBDCP) was started in 1953 as National Malaria Control Programme (NMCP) primarily to deal with malaria. In 2003, NMCP (1953), Kala-azar Control Scheme (1991) and National Filaria Control Programme (1955) were merged under the umbrella programme of NVBDCP. Dengue and Japanese Encephalitis control programme were also started under NVBDCP in 2003. Subsequently, Chikunguniya was included under NVBDCP in 2007. The NVBDCP currently known as National Center for Vector Borne Diseases Control (NCVBDC) and is financed under the National Health Mission. NVBDCP is responsible for planning including financing, policy making, technical guidance, monitoring, and evaluation. The implementation of preventive and control measures



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for the vector borne diseases is primarily the responsibility of the State Governments.

10. It is respectfully submitted that Malaria a life-threatening parasitic disease, is caused by the parasite Plasmodium, which exists in five known species: Plasmodium vivax, Plasmodium falciparum, Plasmodium malariae, Plasmodium ovale, and Plasmodium knowlesi. Of these, P. vivax and P. falciparum are commonly reported in India, with P. falciparum being the primary cause of severe complications and fatalities if untreated. At the time of India's independence in 1947, malaria affected 22% of the 344 million population, leading to approximately 75 million cases and 0.8 million deaths annually. In response, the NMCP was launched in 1953 to curb malaria transmission through indoor residual spraying (IRS) with DDT, case surveillance and treatment of patients, significantly reduced malaria morbidity.
11. That in 1958, aligning with the global malaria eradication goal, India transitioned to the National Malaria Eradication Programme (NMEP), which successfully reduced malaria cases to 0.1 million with zero deaths by 1965. However, a resurgence occurred in 1976, with 6.46 million cases reported. In response, the Modified Plan of Operations (MPO) was introduced in 1977, implementing strategies such as early diagnosis, vector control, and community participation, effectively reducing malaria cases to 2 million and deaths to 247 by 1984.

That the current Status of India's malaria elimination efforts align with the WHO Global Technical Strategy for Malaria 2016–2030 (GTS) and the Asia Pacific Leaders Malaria Alliance Malaria



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Elimination Roadmap. Under this framework, India launched the National Framework for Malaria Elimination (NFME) 2016–2030, aiming to achieve zero indigenous malaria cases by 2030. As a result, there has been an 80.53% decline in malaria cases and a 78.38% reduction in malaria-related deaths by 2023, compared to 2015.

13. That the strategies for Malaria Control the NCVBDC has adopted a three-pronged strategy for malaria prevention, control, and elimination, which includes:

a. Parasite Elimination & Disease Management-

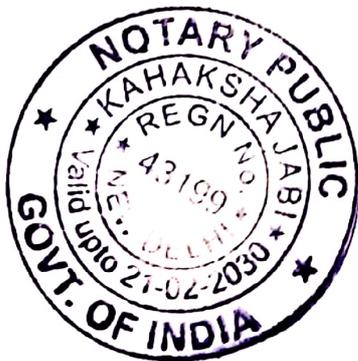
- Early case detection & complete treatment
- Strengthening of referral services
- Epidemic preparedness and rapid response

b. Integrated Vector Management for transmission risk reduction-

- Indoor Residual Spraying with Insecticides
- Long Lasting Insecticidal Nets,
- Indoor Space Spray and outdoor fogging
- Use of Larvivorous fish,
- Chemical & bio- larvicides
- Minor environmental engineering
- Personal protection measures

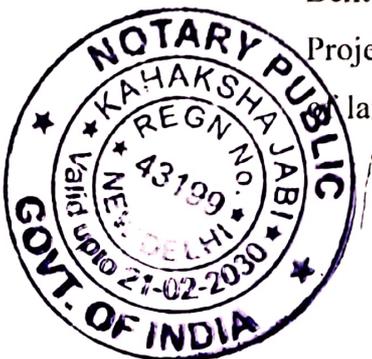
c. Cross cutting interventions-

- Information Education & Communication/Behaviour Change Communication
- Capacity building
- Monitoring & evaluation
- Reviews
- Insecticide resistance monitoring
- Therapeutic efficacy of drug
- Operational Research
- Inter-sectoral collaboration



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18. That it is submitted that the NMEP primarily focused on controlling vector-borne diseases, with rural areas relying on insecticidal spraying and urban areas emphasizing anti-larval measures through the Urban Malaria Scheme (UMS). The Urban Malaria Scheme was launched in India in 1971 in which the main components were Source Reduction, Antilarval measures, Aerosol Spray and Biological Control. Under Biological Control, in some urban areas, larvivorous fish like Gambusia and Guppy were used in certain situations where the chemical control was not feasible. These species had already been utilized for mosquito control for several decades and had become widespread in the Country. This biological control method is particularly effective in environments where mosquitoes breed in such as ponds, marshes, ditches, unused wells, ornamental waterbodies etc. NAMP/NVBDCP provided budgetary support for introduction of larvivorous fish as one of the vector control options under the World Bank supported Malaria Control programme in selected states between 1997 and 2005. Currently, larvivorous fish is considered as one of the strategies for controlling the larval stages of Malaria Vector. For this, provisions were made for construction, maintenance of hatcheries and transportation of fishes. Funds for this purpose are provisioned under NHM.
19. That it is historical use of larvivorous fish to control mosquito larvae. As far back as 1904, fish had been used in Bombay City for the control of *An. stephensi*, (a Malaria vector which breeds in wells) by Bentley and others (Covell 1928). In the construction of Sarda Canal Project between 1920 and 1928, Clyde (1931) had referred the use of larvivorous fish. Over the years, both species have been widely



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utilized in Malaria control programmes across the globe. In Hyderabad city an operational release of *Gambusia affinis* in 1967 controlled the breeding of *An. stephensi* in hundreds of wells in about 2 years. In 1983, a bioenvironmental malaria control strategy was conceptualized by Malaria Research Center (currently NIMR), ICMR and first implemented in Nadiad, Kheda district, Gujarat. In several village councils, guppy fish was cultured along with Indian carps and the money generated was used for village development. After the success in Kheda, similar bioenvironmental malaria control projects were launched across diverse geo-epidemiological zones in India. Which included rural, urban, and industrial areas, each with unique terrain, vector species, and socio- economic conditions. In 1986, the control of mosquito breeding in over 100 experimental villages near Haldwani was attempted by using the *Gambusia*. This enabled to bring down larval density of *An. culicifacies* to low levels.

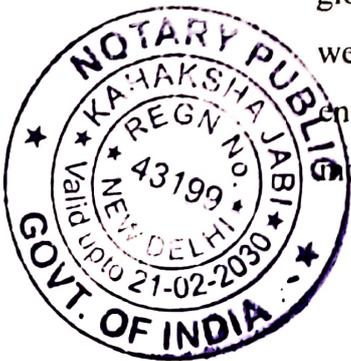
20. That these species important for vector control programme as many reports indicate the significance of two species of fish *Gambusia affinis* and *Poecilia reticulata* in the management of mosquito larvae and their crucial role in global vector control programmes. Mosquitoes, in their larval stage, thrive in aquatic environments, making them an ideal target for control measures. These species are known for their natural ability to consume mosquito larvae, making them effective biological agents in reducing mosquito populations in aquatic habitats. In specific situations where mosquito breeding habitats are well defined and water conditions are suitable, or where chemical larviciding is not feasible, indigenous or exotic fish with a



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known tarvivorous potential can be used for larval control. Although larvivorous fish have been used extensively based on the empirical knowledge, certain scientifically designed trials have proved the operational efficiency of their use in malaria control (WHO 2003).

21. That one of the primary advantages of using larvivorous fish for mosquito control is their eco- friendly nature. Unlike chemical insecticides, which can harm non-target organisms and disrupt ecosystems, larvivorous fish primarily target mosquito larvae. Biological control using larvivorous fish, particularly *Gambusia affinis* and *Poecilia reticulata*, has proven to be a valuable tool in the fight against mosquito-borne diseases. These fish offer a sustainable, environmentally friendly alternative to chemical insecticides and have been successfully integrated into Malaria control programmes, worldwide. It is important in Malaria control programmes to continue the use of larvivorous fish, particularly in areas where chemical control methods are not feasible or have become ineffective due to resistance. Additionally, integrating larvivorous fish with other vector control strategies, such as biological and environmental interventions, will provide a comprehensive and sustainable approach to malaria prevention.
22. That it is submitted that the controlling mosquito populations, especially those responsible for transmitting diseases such as malaria, dengue, and chikungunya, remains an essential part of global public health efforts. Traditionally, chemical insecticides were used to target adult mosquitoes, leading to significant environmental degradation, the development of resistance in mosquito populations, and the unintentional death of non-target

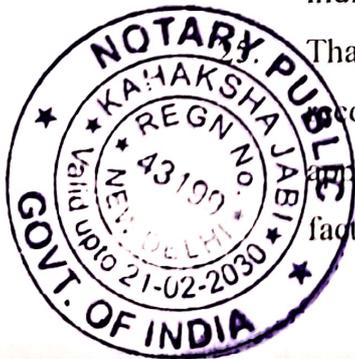


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organisms (WHO, 2010). In light of these adverse effects, there has been an increasing shift towards environmentally friendly and sustainable alternatives. One such alternative is the use of biological control agents, particularly larvivorous fish, which target mosquitoes at their vulnerable larval stage. Numerous scientific studies and field trials have confirmed the effectiveness of larvivorous fish in reducing mosquito populations, particularly in areas with limited access to chemical control methods. The introduction of *Gambusia affinis* in Kunduz valley in Afghanistan significantly reduced Anopheles' larval densities and vector biting rates in rice fields. Similarly, in Egypt and Iran, introduction of *Gambusia affinis* helped to combat Malaria in marshes and water bodies.

23. That as per current guidelines of NVBDCP for maintenance of hatcheries, cost of Rs. 50,000 per mother hatchery and for procuring and transportation of fish from mother hatcheries to other hatcheries or local bodies, cost of Rs. 25,000 per mother hatcheries are given to the state. These funds are provisioned for the states in their Programme Implementation Plan (PIP) under NHM.
24. That it is respectfully submitted that the *Gambusia affinis* and *Poecilia reticulata* continue to serve as biological control agents against mosquitoes, with states encouraged to explore the use of indigenous fish species for vector control.

That the present Reply by way affidavit may kindly be taken on record and into consideration and the Hon'ble Tribunal may pass appropriate order(s), direction(s) as deemed fit and proper under the facts and circumstances of the present case.



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26. That the Answering Respondent seeks leave to make additional submissions, if required, during the course of the proceedings as and when directed by this Hon'ble Tribunal.

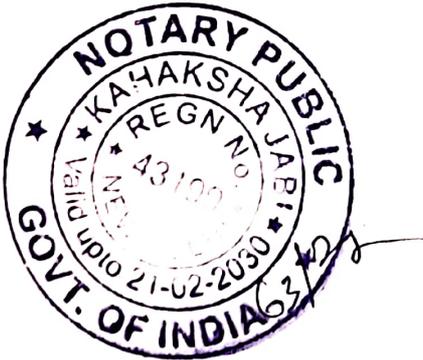
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DEPONENT

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Who
Verification
Identify the Deponent who
has signed in my Presence

30 APR 2025

Verified at New Delhi on, 30th day April 2025 that the contents of above reply affidavit is true and correct to the best of my knowledge an belief as per the official records maintained by the department and nothing material has been concealed therefrom

[Signature]
DEPONENT



ATTESTED

[Signature]

Notary Public
DELHI (INDIA)

30 APR 2025

Register Entry No. 63.4.25